AN EXAMINATION OF THE EFFECTS OF THE *STRONG START PRE-KINDERGARTEN* PROGRAM ON THE BEHAVIORS OF CHILDREN WITH EXTERNALIZING BEHAVIOR DISORDERS IN A THERAPEUTIC PRESCHOOL

by

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ABSTRACT

The current study evaluated the effectiveness of a manualized social and emotional learning curriculum, *Strong Start Pre-Kindergarten (Pre-K)* in decreasing aggressive behaviors and increasing positive social behavior and emotional regulation in a group of 4 to 5 year-old preschool children with serious emotional disturbance and behavior disorders. Participants were children who were attending a therapeutic preschool who had significant elevations on the Externalizing Behavior scale of the Child Behavior Checklist (CBCL). Eleven children were randomly assigned to either a treatment group or a control group with 6 children in the treatment group and 5 in the control group.

The *Strong Start Pre-K* program is intended to facilitate the development of positive social behaviors and emotional regulation among preschoolers. The preschool program consists of 10 lessons which were presented over the course of 10 weeks, and for 3 days each week. An A-B single subject design was used and included a follow-up over the course of three weeks after cessation of the *Strong Start Pre-K* program. Direct observations were made during the baseline, treatment, and follow-up to assess the effectiveness of the treatment program. In addition to the direct behavioral observations, pre-and posttreatment behavioral checklist data were collected from teacher and parent forms administered the first week of baseline and at follow-up. Although results did not show a substantial increase in positive nonverbal behaviors for participants of the *Strong*

Start treatment group, there was a trend for improvement that was found during the treatment and at the time of the follow-up. Further, moderate effect sizes were found for the treatment group participants' engagement in positive nonverbal behaviors. No trend for improvement or significant improvement in social interaction was found for the control group. Both treatment and control groups participants, however, showed decreases in aggressive interactions during treatment and follow-up, albeit small decreases as shown by visual analysis of the results. High consumer satisfaction for the *Strong Start* program was found among participants and the participants' parents and preschool teachers. Results of the current study contribute to the literature; however, further research is needed to support the use of the *Strong Start Pre-K* program in a therapeutic preschool setting where the programing is based on methods to improve social-emotional growth and learning.

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CHAPTER I

INTRODUCTION

Some of the most significant behavioral, emotional, and cognitive growth occurs during the preschool years (Egger & Angold, 2006). Failure to develop age-appropriate pro-social skills and empathy for others, however, puts children at an increased risk for social isolation, peer rejection, poor self-esteem, and other social-emotional problems (Merrell, Whitcomb, & Parisi, 2009). Left untreated, children with poorly developed social skills are not only at risk for problems in school and social interactions, they are at increased risk for serious psychological problems, including externalizing disorders. (Mash & Wolfe, 2005).

Externalizing disorders is a broad term to categorize disorders in which symptoms are primarily manifested as an outwardly aggressive or disruptive manner. Externalizing disorders include the diagnoses of conduct disorder, oppositional defiant disorder, attention deficit hyperactivity disorder, and other specified disruptive, impulse-control, and conduct disorder (American Psychiatric Association, 2013). Children with externalizing disorders experience considerable difficulty demonstrating pro-social behaviors and are often disruptive and noncooperative which leads to alienation of peers and coercive interactions with adults (Webster-Stratton & Taylor, 2001). The Individuals with Disabilities Education Improvement Act (Individuals with Disabilities Education

Act [IDEA], 2004), No Child Left Behind (No Child Left Behind [NCLB], 2002), and the President's New Freedom Commission on Mental Health (2003) have all highlighted the need for early childhood intervention and prevention services for children exhibiting severe behavior problems, which includes externalizing behaviors.

Deficits in Prosocial Behaviors in Children with Externalizing Disorders

Approximately 48% of children with behavior problems in kindergarten will be identified for special education services by the fourth grade (Fox & Smith, 2007). Children diagnosed with externalizing behavior disorders exhibit symptoms of aggression, disobedience, opposition, and destructive behaviors. Early onset behaviors such as these are a known precursor to the development of more serious antisocial behaviors (Bauer & Webster-Stratton, 2006). According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition ([DSM-5]; APA, 2013), the prevalence of Oppositional Defiant Disorder (ODD) is estimated to be between 1-11%. Children who meet the criteria for diagnoses under the diagnostic category of disruptive, impulse-control, and conduct disorders demonstrate symptoms of disruption, impulse-control, and conduct disorder to the extent that they experience substantial impairment or distress in behavior and/or emotional dysregulation (American Psychiatric Association, 2013).

Preschool age is an optimal time to facilitate children's development of social and emotional competencies because preschoolers are still developing these skills. Children at this age often impulsively react to their feelings because they have not yet developed cognitive strategies to verbalize or cope with their emotions (Krammer, Caldarella,

Christensen, & Shatzer, 2009). Parents, schools, and mental health professionals alike are increasingly faced with managing extremely difficult and destructive behaviors of children. One of the biggest limitations to decreasing children's problematic behaviors is the child's ability to generalize newly learned pro-social skills across settings (DuPaul & Eckert, 1994). Generalization of social skills is likely to occur if children are provided opportunities to learn and practice skills in the applied settings in which they are expected to use the skill (DuPaul & Eckert).

Social Skill Development

Development of social skills has been deemed as a "keystone" (i.e., foundational building block) to one's ability to adequately interact with others (Duchame & Schecture, 2011). The teaching of a core set of skills to facilitate the development of competency in the areas of compliance, social skills, and on-task behaviors has been endorsed by the National Association of School Psychologists (NASP) as a pro-active method to manage a range of problem behaviors (Duchame & Schecture, 2011). Deficits in social skills increase the potential for deleterious outcomes as a child reaches adolescence and adulthood. Gresham and Elliott (1987) classify deficits in adaptive behaviors and social skills as being dependent on a child's knowledge of appropriate skills and competing emotional responses that may interfere with the use of those skills.

There is considerable consensus that behaviorally-based methods of modeling, coaching, rehearsal opportunities, role play, constructive and specific feedback, and skill reinforcement are most effective for teaching children socially appropriate skills (Chandler, Lubeck, & Fowler, 1992; Spence, 2003). The Effect Sizes (ES) of social skills

training programs for children with externalizing behavior problems has generally been found to be relatively small, averaging in fact only .19, according to Stage and Quiroz (1997). However, meta-analyses have shown stronger evidence for increasing pro-social interactions when there is a strong behavioral component to the social skills training (ES = .61; Beelmann, Pfingsten, & Losel, 1994). Beelmann et al. further showed that when social skills training is used with populations that are considered at-risk (i.e., lack sufficient positive social experiences or are experiencing severe stress), the effectiveness is even larger (ES = .85).

In a meta-analysis of social skill interventions implemented in public school classrooms, researchers found that the age of the children and the method of instruction impacted the effectiveness of the intervention (January, Casey, & Paulson, 2011). In their review of 28 studies from 1981-2007, the researchers found an overall effect size for classroom implemented social skill instruction was low (ES=.15). However, an analysis of age showed younger students who participated in social skill instruction yielded stronger outcomes. Interventions for preschoolers and kindergarteners had the strongest effect when children were provided with active and direct instruction over passive methods of instruction. Social skill curricula were shown to have the greatest effects for preschool-kindergarten age children (ES = .55) as compared to elementary and middle school age children (ES = .12-.19); the researchers noted the younger children responded best to direct behavioral, rather than cognitive approaches to social skills training. Programs providing instruction on interpersonal problem solving have been shown to have the greatest effects for children aged 2-7 with effect sizes ranging from .27-.93 (Durlak & Wells, 1997). The optimal time for social skills intervention is before the age

of 8 since any efforts to intervene on problematic behaviors after 8 years of age is thought to only "manage" problematic behaviors rather than remediate them (Webster-Stratton & Taylor, 2001). Although there is evidence to suggest social skills training alone is insufficient to induce positive behavior change in children with externalizing behavior problems, it is not clear if there is benefit in the use of social skills training for children with externalizing disorders while they are receiving alternative services to address their problematic symptoms (Spence, 2002).

Social and Emotional Learning

Social and Emotional Learning (SEL) was first introduced by the Fetzer Institute, a nonprofit organization partnering with researchers focusing on social-awareness and acts of altruism, as a theoretical context for addressing the underpinnings of students' problem behaviors while encouraging the skills necessary for academic success (Greenberg et al., 2003). According to the Collaborative for Academic, Social, and Emotional Learning (Collaborative for Academic, Social, and Emotional Learning, [CASEL], 2012), children learn social and emotional skills in order to identify and respond appropriately to their emotions and the emotions of others, make positive decisions about their behavior, and effectively navigate social situations and interpersonal problems (CASEL, 2012). Based on this model, social and emotional skills are taught through the use of explicit instruction where students engage in active, positive activities that address the social situations children experience in daily life (Greenberg et al., 2003).

As a method for increasing pro-social behaviors of children, SEL curricula have gained considerable attention over the past several years (Merrell, Juskelis, Tran, &

Buchanan, 2008). Social emotional learning curricula incorporate methods and techniques to teach and promote mental health resilience, positive social behavior, and social-emotional skills (Merrell et al., 2009). According to CASEL, SEL focuses on the development of fundamental skills so individuals learn to recognize and manage their emotions, develop an understanding of others feelings, establish healthy relationships, and solve problems (CASEL, 2012). The development of social and emotional competency will impact a child's school and social life (Zins & Elias, 2006). There are five key components that are essential to effectively teaching SEL programming: self-awareness, social-awareness, self-management, social management, and responsible decision making (CASEL, 2012; Merrell et al., 2009; Zins & Elias, 2006; see Table 1).

Some SEL curricula are used as universal preventative measures while others are used as tertiary interventions focusing on severe behaviors in need of intensive remediation. Social emotional learning curricula typically cover the same domains of content knowledge: understanding and responding to one's emotions and the emotions of others, emotional regulation strategies, friendship skills, and problem solving strategies. Generally, programs aimed at targeting young children with conduct problems focus on emotional recognition, emotional coping strategies, and friendship skills since young children typically have not yet developed the concrete cognitive skills needed for more cognitive-behaviorally oriented interventions (Joseph & Strain, 2003).

Strong Kids Social Emotional Learning Curriculum Series

The *Strong Kids* curricula are designed to be used by educators and mental health professionals to improve emotional awareness and appropriate response to one's own

emotions and the emotions of others. The original series was intended for use from preschool through the twelfth grade (Merrell, 2009). The *Strong Kids* series includes five SEL curricula for different grade levels: *Strong Start Pre-K*, *Strong Start Grades K-2*, *Strong Kids Grades 3-5*, *Strong Kids Grades 6-8*, and *Strong Teens Grades 9-12*. Though similar concepts underlie the different curricula in the series, they differ based on the developmental level of the students for which it is intended (Merrell, 2009). The development and refinement of the series began as pilot tests in the field by team members of the Oregon Resiliency Project in 2001 (Merrell, 2010). Protocols, lesson scripts, and instructional activities for each lesson were augmented to make the lesson developmentally appropriate for each age group. Results of these initial studies were promising in that students were shown to increase their social-emotional knowledge and reduce problem behaviors (Merrell, 2010). Since the *Strong Start Pre-K* program belongs to a curriculum series that spans preschool to 12th grade, and each grade level unit parallels the same curricular structure, the following review of program effectiveness will include various levels of the *Strong Kids* social and emotional learning curriculum series.

To date there is only one published study that has examined the effectiveness of the *Strong Start Pre-K* program. Gunter, Caldarella, Korth, and Young (2012) examined the effects of students' participation in the *Strong Start Pre-K* program on teacher ratings of social and emotional competency; specifically, emotional regulation and internalizing behaviors. Three groups of preschool students (n = 52) from public schools in an urban area in the Midwest were compared: *Strong Start* intervention, *Strong Start* plus program booster session, and a control group. Results showed that the intervention plus booster sessions produced the greatest impact on students' emotional regulation (d = .83) in

comparison to the intervention only group (*d* = .56); however, the results were not significantly different from that of the control group (*d* =.85). The authors hypothesized this may have been the result of natural maturation in emotional regulatory ability that typically develops through the preschool years. There were notable group differences on a measure of internalizing behaviors with the intervention plus booster group demonstrating the greatest reduction in internalizing behaviors (*d* =1.43) in comparison to the intervention only group (*d* = .59), and the control group (*d* = .23). Teacher reports of their relationship with students through reductions in conflict also demonstrated the greatest improvement for the intervention plus booster group (*d* = .67) compared to the intervention only group (*d* =.43), and the control group (*d* = .20). Teachers also reported noticeable increases in students' emotional regulation. The limitations of the Gunter et al. (2012) study were a lack of randomized assignment to intervention groups and possible teacher bias. Since raters were also program implementers, they may have been more inclined to rate positive changes in their students' behaviors. Additionally, only subscales of behavioral measures were utilized which limited full examination of other factors that may have been impacted for students receiving the *Strong Start Pre-K* intervention. The researchers were of the opinion if the bulletins for each lesson would have been utilized, greater improvement in skills learned in the program may have been observed.

Research on the *Strong Kids* series has shown reductions in internalizing symptomology as well as gains in social and emotional competency (Caldarella, Christensen, Kramer, & Kronmiller, 2009; Tran, 2007; Whitcomb, 2009). Furthermore, there is some evidence of a reduction in problematic behavior of students as they develop more pro-social behaviors after participating in *Strong Kids* instruction (Harlacher &

Merrell, 2010; Kramer et al., 2009; Nakayama, 2008; Whitcomb, 2009). Merrell (2010) notes that when studies have failed to show meaningful reductions in problematic symptoms, this may reflect the effect of an "asymptomatic" population with low base rates of problem behaviors pre-instruction, which impede reductions in behaviors post-instruction. Each study examining the *Strong Kids* series curricula has found meaningful outcomes regarding treatment fidelity, social validity, gains in student's social-emotional competency, and reduction of problem symptoms (Merrell, 2010).

Several studies have been conducted with the *Strong Kids* social-emotional learning curricula series; however, the primary focus of the research to date has been on elementary and middle school students in the public schools. Central to that, focus has been the examination of program effectiveness for the reduction of internalizing symptomology (Table 2). A limitation to a universal methodology for teaching social skills is the use of such training within an asymptomatic population (Merrell, 2010). Studies conducted with the *Strong Start* program, part of the *Strong Kids* social-emotional learning series, has shown teacher-reported reductions in the problem behaviors of children and demonstration of more positive social interactions with peers for children who were having difficulty in these areas (Whitcomb, 2009).

The *Strong Start K-2* program's effectiveness has also been examined with first grade students (Whitcomb, 2009). Findings indicted positive change in students' peer relations (ES = .57) and a reduction in problem behaviors. Although there was only a marginal effect size for the decrease in students' problem behaviors (ES = -.19), when students who did not display prior problem behaviors were eliminated from the analysis, a significant reduction in students' problem behaviors was found for those who had more

significant behavior problems beforehand. Studies examining the effects of the *Strong Kids* curriculum series, indicate the program can be effective in reducing externalizing behaviors of young children while at the same time increasing social participation (Whitcomb, 2009).

Kramer et al. (2009) examined the use of the *Strong Start K-2* program on the social and emotional competency of kindergarten students as measured by pro-social behaviors, peer relations, and internalizing symptoms. Kindergarten students (n = 67) demonstrated an increase in parent and teacher ratings of students' pro-social behaviors (d =1.39 and d = .44, respectively). Teachers reported a greater decrease in internalizing symptoms (d = .48) in comparison to parent report of symptoms (d = .18). Limitations were similar to those noted by Gunter et al. (2012) teachers were implementers and raters of the student outcomes. Kramer et al. recommended the possible use of child self-report to further assess the effects of program participation as well as use of randomization to intervention groups and inclusion of a control group.

Caldarella et al. (2009) studied the *Strong Start K-2* program with a group of second graders examining the effects on social and emotional competency. Results showed improvements in students pro-social peer relations (ES = .59), especially for students who were identified prior to intervention as "at risk" for negative peer interactions (ES = 1.75). The second grade students who were in the "at-risk" range were also found to have fewer internalizing and externalizing problems following the intervention. The study also showed a decrease in ratings of students' internalizing behaviors, including a significant percentage of students with decreased externalizing behaviors. These results are consistent with Whitcomb's (2009) findings.

The *Strong Kids* curriculum also has been used with older students. Nakayama (2008) examined the effectiveness of the *Strong Kids 3-5* program with students receiving primary academic instruction in a self-contained classroom to determine if the intervention would improve positive social behaviors, increase problem solving skills, and help with emotional and behavioral regulation. Results demonstrated increases in the students' social and emotional knowledge (ES = .92), and demonstration of positive social and emotional skills (ES = .48), as well as reduction of problematic emotional-behavioral symptoms (ES = .35). Further, teachers reported increases in the students' use of pro-social skills (ES = .31).

Other studies of the *Strong Kids* social-emotional curriculum have shown student gains in social and emotional knowledge following the intervention with moderate to large effect sizes postintervention and at time of follow-up 2 months later (Harlacher & Merrell, 2010). Third and fourth grade students who received instruction in the *Strong Start 3-5* program showed gains in social-emotional knowledge postintervention (d= .73) and at follow-up (d = .68). Students' ability to seek social support and problem-solve also increased postintervention (d = .67) and at follow-up (d = .58). Social and emotional assets and resilience increased postintervention (d = .81) as well as at follow-up (d = .76) in addition to increased school social behavior postintervention (d = .82) and at follow-up (d = 1.13).

Middle school students who received *Strong Kids* social-emotional curriculum instruction demonstrated gains in social-emotional knowledge (ES = 1.06) and skills (ES = 1.32; Gueldner, 2007). Additionally, prior to receiving *Strong Kids* instruction, 9% of the students scored in the "at risk" range on measures of childhood depression and only

4% had elevated depressive symptomatology scores postintervention. Office disciplinary referrals also decreased for students who had been chronically referred for behavior (ES = .28). A low rate of change in problem behaviors was attributed to low symptomatology among participants prior to intervention.

Merchant et al. (2010) examined the effectiveness of the *Strong Kids* program for reducing the internalizing behaviors of third, fourth, and fifth grade students (n=22) who had been identified by teachers as at-risk for internalizing symptoms. Teacher reports indicated a decrease in students' internalizing symptoms between pretest and follow-up (d = .81). Students' self-report of internalizing symptoms decreased between pretest and follow-up (d = .25) and they demonstrated an increase in their social-emotional knowledge (d = .63).

Use of the *Strong Kids* programming for adolescent students has demonstrated less promising results. Adolescents in a residential treatment program did not demonstrate notable effect sizes for changes in internalizing or externalizing symptoms (Isava, 2006). Lack of symptom or behavior change was hypothesized by Isava to be attributed to perpetual patterns of behavior that have become resistant to intervention by adolescence. Results of the study suggest the use of a social-emotional curriculum intervention may best serve younger populations.

Strong Start Pre-K

Strong Start Pre-K is designed to enhance preschool aged children's social, emotional, and cognitive functioning (Merrell, Whitcomb, & Parisi, 2009). The program is prevention and early intervention focused for use with typically developing, at-risk,

and emotionally disturbed students (Merrell et al., 2009). The *Strong Kids* series has demonstrated effectiveness across different ages of children, is low cost, and can be implemented in a variety of settings with minimal training (Merrell, 2010; Merrell et al., 2009). Many SEL programs require substantial cost and training or certification to implement the program, but few SEL programs have a curriculum specific to preschool children (Merrell, 2010; Merrell et al., 2009).

Strong Start Pre-K is designed to be administered during weekly sessions for 10 weeks covering ten lessons (see Table 3). The *Strong Start Pre-K* program teaches students methods for understanding and managing their own emotions, understanding and appropriately responding to the emotions of others, and adaptive problem solving strategies. The goal of the program is to build children's social and emotional competency as well as promote their mental health and resiliency (Merrell et al., 2009). By learning positive social, emotional and behavioral skills, children are better equipped to face challenging situations (Merrell, 2010).

The *Strong Start Pre-K* program was developed after the development and field testing of the *Strong Kids* and *Strong Teens* components of the series. The *Strong Start Pre-K* curriculum follows the same general curriculum as the rest of the *Strong Kid* series, but is designed to be developmentally appropriate for children aged 3-5 (Merrell et al., 2009). The curriculum content is presented in a concrete manner in order to make the lessons meaningful to participants. Lessons provide children with explicit and familiar examples and scenarios while using repetition for concept mastery. Lessons are designed to be short but interesting in order to capture and maintain the interest and attention of preschoolers (Merrell et al., 2009). Preschool aged children are continuing to develop

emotionally while learning effective social interaction strategies (Egger & Angold, 2006; Merrell, 1996; Zins & Elias, 2006). Providing preschool children with explicit instruction in emotional literacy helps children to better understand negotiation, compromise, and effective methods of communication (Merrell et al., 2009).

The first program lesson is an introduction to the group where participants are informed about the purpose of the group and group rules are established. Developmentally appropriate scripts for each lesson are provided as part of the *Strong Start Pre-K* curriculum manual. Subsequent groups focus on teaching about feelings, how to identify one's own feelings and the feelings of others, appropriately responding to emotions, being a good friend, problem solving strategies, and methods for resolving conflicts. A new concept is covered in each week's lesson revolving around six core emotions: happy, sad, afraid, angry, surprised, and disgusted. Lessons are approximately 30 minutes in length and follow the same general format. First a brief review of the previous lesson is provided followed by an introduction to the current lesson. Children are then read a book related to the lesson from the *Strong Start Pre-K* suggested books list provided in the mannual. Next, children participate in a lesson activity that may include an art project, role play/practice scenarios, or lesson games. The lesson is closed with a review of what was learned for that day. At the end of each lesson participants' parents are provided with a *Strong Start Pre-K* bulletin. The parent bulletin provides information about the skills taught and practiced during the lesson as well as suggestions for parents to help their child practice the skills at home.

In order to assist participants in the generalization and maintenance of skills learned during the lessons, the *Strong Start Pre-K* program includes "Applying What We

Learned" lessons which are taught within 2 days of the weekly lesson. These follow-up lessons include a brief activity in which the participants are provided prompts designed to help children anticipate when they would use the skills learned, reminders of how to effectively use new skills, and provide acknowledgement and praise for the performance of new skills. The program also includes two booster sessions to be taught on two different days at least one month after the completion of the 10 program lessons. The first booster session reviews the first six lessons and the second booster session covers that last three. Booster sessions are optional, and it should be noted they were not administered in the current study.

Theoretical Basis for *Strong Start Pre-K*

The *Strong Start* program's theoretical framework for the enhancement and promotion of social and emotional resiliency and competence is rooted in social learning theory (Bandura, 1977). Program development was also strongly influenced by the mental health work of Greenberg, Domitrovich, and Bumbarger (2001), the concept of developmental resilience (Doll & Lyon, 1998), and social and emotional learning theory (Zins, Bloodworth, Weisberg, & Walberg, 2004).

The *Strong Start* curriculum is structured around the principles of social learning theory whereby the children participating in the group learn and model emotions and appropriate emotional and social interaction responses. Program development was in part, a response to mental health needs of students to be addressed in the schools (Merrell, 2010). Between 12-22% of school aged children experience mental health problems significant enough to warrant mental health intervention (Greenberg et al., 2001).

Development of the program was influenced by the principle that changes in society and the dynamics modern family life place children at an increased risk for behavioral, social, and mental health problems (Doll & Lyons, 1998).

Developmental resiliency is the ability to successfully cope with adversity, risk factors, life-stressors, and to develop into a competent and productive adult, despite having faced significant social-emotional problems in childhood (Doll & Lyon, 1998; Merrell et al., 2009). The concepts presented in the *Strong Start* curriculum lessons build on the idea of emotional resilience by providing children with lessons on effectively managing situational adversity through the development of problem-solving skills, and behavioral and affective management skills (Merrell et al., 2009).

The design of the program curriculum aligns with Social and Emotional Learning (SEL) theory. Social and emotional learning provides children with a process by which they learn to recognize and manage emotions, develop empathy for others, make adaptive decisions about how to respond to situations, behave appropriately, develop positive relationships with others, and avoid negative behaviors (Zins et al., 2004). The theoretical framework of providing SEL instruction posits that providing children with the opportunity to learn, demonstrate, and be rewarded for positive behaviors, encourages less risky behaviors, and the development of positive behaviors. This leads to increased engagement and commitment to academic performance and adaptive social interactions (Zins et al., 2004).

Generalization and Maintenance of Social Skills Training

DuPaul and Eckert (1994) evaluated the effects of commercially available social skills training programs. The most significant maintenance effect came from a combination of social skills training paired with a modification of consequences in the natural environment. Identified moderators of treatment included: skill vs. performance deficits, inconsistent consideration of setting variables, and consideration of environmental variables. Social skills curricula that combine the teaching of specific social skills within a programmed environment have demonstrated the most promising generalization and maintenance results. Programs using a "train and hope" method have produced the worst outcomes for generalization of skills. DuPaul and Eckert suggest time and resources be allocated to the facilitation of practicing learned social skills in environments the child will be expected to use them. The program under examination in the current study, *Strong Start Pre-K,* aims to provide these opportunities through a weekly parent bulletin which provides tips and strategies to encourage the use of skills learned by children in the program.

Other factors of social skills training that facilitate children's learning and maintenance of skills included contingency management, parent training, and use of self-regulation, all of which have been shown to be effective in reducing conduct problems (Spence, 2002). Contingency management is the reinforcement of a desired behavior based on a behavioral criterion having been attained. Group contingency management, whereby an entire group is held responsible for meeting the desired behavioral criteria, is one of the most effective methods for decreasing disruptive behaviors in children (ES = -1.02; Stage & Quiroz, 1997). Differential reinforcement of behavior reinforces desired

behaviors, while undesirable behaviors are ignored. Stage and Quiroz found differential reinforcement produced large decreases in disruptive behaviors (ES = - .95) and use of self-management strategies decreased problematic behaviors decreased significantly (ES = -1.0).

In a review of 22 studies from 1976-1990 examining the generalization and maintenance of social skills in preschool children, behavioral prompting, positive reinforcement, and direct instruction were found to be the most successful behavioral change strategies (Chandler et al., 1992). Social skills programs that incorporate these types of evidence-based strategies have shown the most effective social-emotional outcomes for young children with conduct problems. The *Strong Start* program incorporates the aforementioned methods for generalization and maintenance of social skills.

Interventions for Externalizing Behavior

Evidence suggests that without early intervention for emotional and behavioral problems, maladaptive behavior patterns will become more resistant to intervention and can result in escalating social, academic, and vocational problems (Joseph & Strain, 2003; Webster-Stratton & Reid, 2003). There are several social skills intervention programs available for use with children who demonstrate disruptive behaviors. Some programs refer themselves social skills programs or interventions, while others refer to themselves as social and emotional curricula. These social skills intervention programs generally share several common components.

Social skills and social and emotional curricula interventions targeting early

childhood conduct problems generally fall into five broad categories: Parent-focused, family-focused, multicomponent, medication therapies, and social-emotional learning (SEL). Parent-focused and family-focused interventions involve parent training on methods for decreasing children's aggressive and defiant behaviors (Powell et al., 2006). Most parent training interventions are delivered in a group format and focus on teaching parents how to effectively provide children with commands, appropriate use of punishments, and how to praise and reward desired behaviors (Powell et al., 2006).

A family-focused approach typically occurs within a family's home using the same strategies parent training programs offer. A multicomponent approach to the reduction of childhood conduct problems, incorporates the combination program styles such as group parent training plus home-based interventions. Medical interventions for conduct problems in early childhood encompass medications targeting the symptoms of aggression more so than other disruptive behaviors (Eyberg, Nelson & Boggs, 2008).

Since not all parents are available for parent training due to life circumstances or their own reluctance, direct child training is another approach to managing conduct problems of children during early childhood (Webster-Stratton & Reid, 2003). Social and Emotional Learning (SEL) curricula, such as the program under investigation in the current study, are designed to decrease problematic behaviors while focusing on increasing pro-social behaviors. Techniques aimed at capturing the attention of children and engaging them in lessons such as use of children's books, puppets, role-playing vignettes, modeling appropriate behavior, and activities are typically utilized in social-emotional curriculums (Powell et al., 2006; Webster-Stratton & Reid, 2003). Fostering the development of friendship skills, emotionally literacy and recognition, problem-

solving skills, and emotional coping strategies through explicit instruction of curriculum concepts are the core goals of SEL curricula lessons (Joseph & Strain, 2003).

Statement of Purpose

Negative behaviors of preschool children are strong predictors of children's later social competence and behavior once they enter the formal school system if they have not received early intervention to manage their behaviors (Carter et al., 2010). The problematic behaviors typically displayed by children who have externalizing behavior disorders are a primary reason for referral to community mental health centers (Keenan & Wakschlag, 2002). Similarly, these behaviors can lead to behavioral referrals in the schools. This is the reason this study is being conducted, that is, to assess whether early intervention such as *Strong Star Pre-K* will provide preschool children with externalizing behavior problems with social skills to change their behavior.

Although preschool children's disruptive and aggressive behaviors are recognized by parents and school professionals as a prevalent and problematic issue, research on effective intervention strategies for this age group are sparse in comparison to other age groups (Egger & Angold, 2006). Having an adaptive social-emotional skill set provides young children with a foundation on which they will be able to build and maintain healthy relationships and achieve their highest academic potential (Zins & Elias, 2006). SEL provides students with knowledge and skills needed to increase their social-emotional competencies while reducing problematic behaviors (Merrell, 2010).

Because the studies to date using the *Strong Start* and other *Strong Kids* programming have focused on the reduction of internalizing symptoms of students, it is

not yet clear if this program in particular is effective in reducing problem behaviors in early childhood (Merchant, Brown, Caldarella, & Young, 2010). Because the social reactions of young children are largely driven by emotional responses, it is reasonable to anticipate children who are provided instruction in the identification of, understanding of, and response to emotion, will demonstrate positive gains and adaptive social behaviors. The primary purpose of the current study was to examine the effectiveness of the *Strong Start Pre-K* program in a therapeutic preschool with clinically diagnosed children who had a history of serious antisocial behaviors.

The *Strong Kids* program series is a SEL curriculum that was developed to be used within a universal prevention and early intervention model. Development of the program grew out of the increasing need for schools and mental health professionals to efficiently and effectively intervene with students' mental health needs (Merrell, 2010). Research conducted with the *Strong Kids* program series has demonstrated positive outcomes, increasing students' knowledge about emotions, appropriate social responses and coping skills as well as decreasing negative social behaviors (Harlacher & Merrell 2010). To date, much of the research with the *Strong Kids* program series has focused on the prevention efforts of the program within the universal tier/Positive Behavior and Intervention Supports (PBIS) model (Merrell et al., 2009). Research has demonstrated reductions in internalizing symptoms and decreases in students' disruptive behaviors, as well as feasibility and fidelity of implementation across settings (Caldarella et al., 2009; Feuerborn, 2004; Harlacher & Merrell, 2010; Isava, 2006; Kramer et al., 2009; Merrell et al., 2008, Whitcomb, 2009).

Research to date on the *Strong Kids* curriculum series has provided some

direction in terms of the current study (see Table 4). This includes randomization, methods to reduce rater-bias, use of more comprehensive measures of intervention effects, and the distribution of the parent bulletin to promote the child's generalization and maintenance of knowledge and skill. More research is needed to determine the effectiveness of the preschool version of *Strong Kids* as an early intervention support. The *Strong Start Pre-K* program's effectiveness has not been examined with children outside the public school classroom. Additionally, the *Strong Start Pre-K* program has yet to be examined for its effectiveness as a Tier 2 intervention for preschool children identified as having serious social and emotional difficulties.

Previous studies have recommended additional examination of the effects of *Strong Start* on children who are already receiving therapy or who are exhibiting problematic behavior (Caldarella et al., 2009; Harlacher & Merrell, 2010; Whitcomb, 2009). Use of the program within different tiers of intervention has been suggested in order to provide evidence for determining which population the *Strong Kids* curricula series are most effective (Harlacher & Merrell, 2010; Whitcomb, 2009). It has also been recommended that future research on the curricula include both direct and indirect measures to assess participants' acquisition of behaviors associated with behavioral regulation, including use of appropriate words to express emotions and generating pro-social solutions to problems (Caldarella et al., 20009; Whitcomb (2009).

Caldarella et al. (2009) recommended that future studies of *Strong Start* include direct contact with parents to explain the parent bulletin as a way to increase the likelihood skills learned during group lessons will be prompted and reinforced outside the school. It was recommended direct and indirect assessment methods be used to assess

behavioral change; including more measures of social-emotional assets (not just deficits). Other recommendations included the use of direct observations to assess specific behaviors related to emotional and behavioral regulation and the effectiveness of the *Strong Start* intervention with students who are already displaying problematic behaviors.

Research Questions

1a. ***What are the effects of the Strong Start Pre-K program on positive social interactions of preschool children with clinically elevated externalizing behaviors during a treatment setting free-play period with treatment group peers?***

This question was examined using observational data collected immediately following the *Strong Start Pre-K* session during treatment setting free-play time (see Appendix A for the partial time interval behavior observation form). In addition to calculating effect size using frequency data (positive social interactions) both Percentage of Nonoverlapping Data (PND) and Percentage of All Nonoveralpping Data (PAND) were used to determine the extent to which the treatment was effective for increasing positive social behaviors.

1b. ***What are the effects of the Strong Start Pre-K program on negative social interactions of preschool children with clinically elevated externalizing behaviors during a treatment setting free-play period with treatment group peers?***

This question was examined using observational data collected immediately following the *Strong Start Pre-K* session during treatment setting free-play time (see

Appendix A for the partial time interval behavior observation form). In addition to calculating effect size using frequency data (negative social interactions) both PND and PAND were used to determine the extent to which the treatment was effective for increasing positive social behaviors.

2a. ***What are the effects of the Strong Start Pre-K program on positive social interactions compared to data from peers not participating in the Strong Start Pre-K program but receiving the standard therapies in the therapeutic preschool program?***

This question was examined using composite peer comparison observational data collected during regularly scheduled free-play in the therapeutic preschool classroom (see Appendix B for peer comparison partial time interval behavior observation form). Effect size was used to assess change in frequency of engagement in positive social interactions along with PND and PAND to determine the extent to which the treatment was effective.

2b. ***What are the effects of the Strong Start Pre-K program on negative social interactions compared to data from peers not participating in the Strong Start Pre-K program but receiving the standard therapies in the therapeutic preschool program?***

This question was examined using composite peer comparison observational data collected during regularly scheduled free-play in the therapeutic preschool classroom (see Appendix B for peer comparison partial time interval behavior observation form). Effect size was used to assess change in frequency of engagement in negative social interactions along with PND and PAND to determine the extent to which the treatment was effective.

3**. *Does participation in the Strong Start Pre-K program result in reduction of***

negative behaviors as reported by teachers and parents on the pre- and posttreatment behavior checklists?

This question was analyzed using descriptive statistics for pre- and postratings by teachers and parents on the Preschool and Kindergarten Behavior Scales – Second Edition (PKBS-2): Problem Behavior scale and the Child Behavior Checklist – Teacher Rating Form (CBCL-TRF): Externalizing Problems Scale.

4. ***Does participation in the Strong Start Pre-K program result in increases in positive social skills as reported by teachers and parents on pre- and posttreatment behavior checklists?***

This question was analyzed using descriptive statistics for pre- and post-ratings by teachers and parents on the Preschool Behavioral and Emotional Rating Scale (PreBERS): Emotional Regulation Scale; the Preschool Behavioral and Emotional Rating Scale (PreBERS): Social Confidence Scale; and the Preschool and Kindergarten Behavior Scales – Second Edition (PKBS-2): Social Skills Scale.

5. ***Do parents and preschool teachers of participants find Strong Start Pre-K to be a socially valid intervention?***

This question was analyzed using descriptive statistics from data collected from the Behavior Intervention Rating Scale (BIRS).

6. ***Do child participants find Strong Start Pre-K to be an enjoyable experience?***

This question was examined using descriptive statistics from data collected from the Child Consumer Satisfaction Survey (CCSS).

Supplemental Research Questions

7. ***If there are increases in positive social interactions of participants of the Strong Start Pre-K program, are these increases maintained after cessation of the Strong Start program?***

This question was examined using direct observational data collected during post-treatment phase in both the treatment setting and classroom setting. Effect size, PND, and PAND were used to determine the extent to which positive social interactions of *Strong Start* participants were maintained through the follow-up period.

8. ***If there are decreases in negative behaviors of participants of the Strong Start Pre-K program are these decreases maintained after cessation of the Strong Start Pre-K program?***

This question was examined using direct observational data collected during post-treatment phase in both the treatment setting and classroom setting. Effect size, PND, and PAND were used to determine the extent to which positive social interactions of *Strong Start* participants were maintained through the follow-up period.

9. ***If a booster session was needed, do participants demonstrate a decrease in negative social interactions and/or increases in positive social interactions after receiving the booster sessions?***

This question was to be analyzed through visual analysis of direct observation data collected during the treatment setting free-play and tested using effect size. It should be noted, however, that no participant met criteria for requiring a booster session, therefore no analyses were performed.

Table 1

Components of Social and Emotional Learning Skills

Skill	Description
Self-Awareness	The ability to identify and recognize ones emotions, values and strengths
Social Awareness	Recognizing the emotions of others, the strengths of others, and an understanding of how others emotions might impact a situation
Self-Management	The ability to monitor and control one's emotions and behaviors to attain a goal in a social situation
Social Management	The ability to cooperate, seek and offer help, communicating, and management of one's behaviors to attain a goal in a social situation
Responsible Decision Making	Making decisions that will be safe and healthy for one's self and others around them

Table 2

Research on *Strong Kids* Curriculum Series

Author	**Grade**	**Special Characteristics**	**Study Focus**	**Outcomes**
Caldarella et al., 2009	2nd	General education	Social-emotional competency	Increased Teacher report social confidence. Decreases in teacher reported internalizing symptoms
Castro Olivo, 2007	9-12th	Latino Immigrants	Cultural adaptation of the program for social-emotional and academic outcomes	Increase in students' knowledge of healthy social-emotional behavior; Effective linguistic adaptation; reduction in acculturation stress and increased school belonging
Gunter et al. 2012	K	General Education	Social-emotional regulation; internalizing symptoms	Decrease in internalizing symptoms and improvement in student-teacher relationships. Increases in emotional regulation were not substantially different from the control group.
Gueldner et al., 2006	6th	General Education	Effects of consultation to teachers implementing *Strong Kids*	Increase in students' social-emotional knowledge; consultation with teachers implementing the program did not produce better outcomes over teachers not receiving consultation on program components
Harlacher 2008	3-4th	General Education	Social-emotional knowledge and functioning	Increase in students' social-emotional knowledge; increased self-report social-emotional competencies; increased teacher report social competencies; maintenance of gains at follow-up.
Isava, 2006	9-12th	Residential Treatment Setting	Residential treatment for chronic and severe social, emotional, and behavior problems	Increase in students' social-emotional knowledge; decrease in self-reported internalizing symptoms; increased teacher rated social competency; increases in parent reported social competence
Kramer et al., 2009	K	General Education	Social-emotional competency and internalizing symptoms	Decrease in self-reported internalizing symptoms; increase in self-reported social-emotional competence and resilience
Levitt, 2008	6th	General Education	Consultation	Consultation with teachers implementing the program did not produce greater outcomes for students
Marchant et al., 2010	3-5th	General Education	Internalizing symptoms and knowledge of emotion and social skills	Increase in students' social-emotional knowledge; decrease in self-reported internalizing symptoms; maintenance of treatment gains at follow-up; decrease in teacher reported internalizing problems
Merrell, Juskelis, et al., 2008	5; 7-8; 9-12	General Education	Social-emotional health knowledge; negative affect and emotional distress	Increase in students' social-emotional knowledge; decrease in self-reported internalizing symptoms;

Table 2 Continued

Research on *Strong Kids* Curriculum Series

Author	**Grade**	**Special Characteristics**	**Study Focus**	**Outcomes**
Nakayama, 2008	3-5th	Self-contained special education students with Emotional and Behavior Disorders (EBD)	Social-emotional knowledge; emotional-behavioral symptoms; perceived social skills	Increase in students' social-emotional knowledge; increased self-reported social-emotional competence and resilience
Tran, 2007	4-5th	General Education	Massed practice (6-weeks) vs distributed practice (12 weeks)	Increase in students' social-emotional knowledge; decrease in self-reported internalizing symptoms; no difference found related to instructional pacing.
Whitcomb, 2009	1st	General Education	Social-emotional knowledge; social behavior; affect	Increases in emotional knowledge; decreases in teacher reported internalizing symptoms of students; decreases in problem behaviors for those exhibiting behavior prior to treatment

Table 3

Strong Start Pre-K Curriculum Lessons

Strong Start Pre-K Curriculum Component
1. Feelings exercise: Introduction to group
2. Understanding your feelings: Teaching basics about feelings
3. Understanding your feelings: Teaching appropriate ways to manage feelings
4. When you are angry: Managing anger and helpful ways of handling anger
5 When you are happy: Teaching students to be happy and use positive thinking
6. When you are worried: Teach students to manage anxiety, worry, and fear
7. Understanding other people's feelings: How to identify other people's feelings
8. Being a good friend: Teaching students basic communication and friendship making skills
9. Solving people problems: Teaching how to solve problems with others
10. Finishing up: Review major concepts
Booster Lesson 1: Review *Strong Start Pre-K* Lessons 1-6
Booster Lesson 2: Review *Strong Start Pre-K* Lessons 7-9

Table 4

Need for Further Study

Author Identifying Need	**Need to be Addressed**
Caldarella et al. (2009)	Contact with parents and use of the parent bulletin; use of direct and indirection behavior observation measures; use of measures to assess social assets not just deficits; use of *Strong Start* with children already displaying problematic behaviors.
Gunter et al. (2012)	Randomization of participants to treatment verse control group; behavior ratings completed by raters other than teachers who implemented the program; use of the parent bulletin.
Kramer et al. (2009)	Behavior ratings completed by others than teachers who implemented the program; randomization of participants to treatment or control group.
Harlacher & Merrell (2010)	Program effects as a secondary or tertiary intervention; examination of participants with risk-factors on outcomes of program implementation.
Merchant et al. (2010)	Program effectiveness with children who demonstrate primarily externalizing symptoms; use of the program within different tiers to assess for which population the program is most effective.
Whitcomb (2009)	Use of the *Strong Start* program with children younger than 1st grade, children exhibiting social-emotional and/or behavioral difficulties; use of direct and indirect measures.

CHAPTER II

METHODS

Prior to participant recruitment, permission to conduct the study at the therapeutic preschool was obtained from the executive director of the agency the executive director reviewed the proposed study and the *Strong Start Pre-K* program to determine if the proposed treatment curriculum was appropriate for the treatment setting. The proposal was approved by the agency and was then submitted to the Institutional Review Board (IRB) at the University of Utah. Approval from the University of Utah IRB was obtained prior to the start of this study.

Procedures

Participants in the study were recruited from classrooms at a therapeutic preschool treatment program for toddlers and preschoolers who live in the Intermountain West, all of whom have significant internalizing and externalizing disorders. In order to meet inclusionary criteria for study participation, children had to be between the ages of 4-5 and have an elevated Externalizing Scale T-score of 63 or more on the parent-completed Child Behavior Checklist (CBCL; note that a T-score of 63 is considered clinically significant for the 1 ½ -5 year-old CBCL group; Achenbach & Rescorla, 2000)

at time of enrollment at the preschool. The executive director of the therapeutic preschool sent a letter to the parents of children meeting these criteria to introduce the opportunity to participate in the *Strong Start* program study. Twelve children were identified who met the inclusionary criteria, and these children's therapist contacted the parents to determine interest in the study. Upon receipt of parents indicating their interest, the primary investigator (PI) contacted the parents by telephone to explain the study. Parents were given the PI's cellphone number and encouraged to call at any time with questions. A permission to participate form (see Appendix C) and a written description of the study (see Appendix D) were sent to parents with self-addressed stamped envelopes for return to the PI. Preschool teachers were also provided with a description of the program and permission to participate form (see Appendix E). Of the 12 participants contacted, 11 agreed to participate. Six of the 11 children were randomly assigned to participate in the *Strong Start Pre-K* treatment program and the remaining 5 were assigned to the control group. Both groups of children continued to receive the regular therapeutic preschool therapies.

After participants were randomly assigned to their respective group, the 3 week baseline phase began. During baseline, data were collected using direct and indirect observation measures. The treatment group was observed three times a week for 10-minutes during a free-play period in the treatment setting for a total of nine direct behavior observation periods. The free-play observations in the treatment setting utilized the following selected toys (LEGOS, Ants in the Pants, Don't Break the Ice, toy trains and cars with a track, Jenga, and Transformers). Toys selected for the treatment setting free-play sessions were such that they could be used in either solitary or joint play. These

toys have been utilized to examine the transfer of social skills training in previous studies of social skills interventions (e.g., Hood, 2011; Radley, 2010). In addition to observations in the treatment setting, participants in the treatment group were observed once a week with control group participants during regularly scheduled free-play in the classroom for a total of three observations during baseline. Direct observations of treatment group participants took place in the treatment setting three times weekly for 10-minutes and once weekly in the therapeutic preschool classroom with control group participants during regularly scheduled free-play for a 10-minute observation period.

Indirect behavior observation data were collected through dissemination of behavior questionnaires. At the start of baseline, therapeutic preschool teachers of all 11 children completed the Preschool and Kindergarten Behavior Scales – Second Edition (PKBS-2; Merrell, 2002); the Preschool Behavior and Emotional Rating Scale (PreBERS; Epstein & Synhorst, 2009); and the Caregiver-Teacher Report Form (C-TRF; Achenbach & Rescorla, 2000). Parents of all participants also completed the PKBS-2 at the start of baseline. Immediately following the end of the treatment phase, scales were disseminated again as a posttest measure. Teachers and parents of treatment group participants were also asked to complete the Behavior Intervention Rating Scale (BIRS; Von Brock & Elliott, 1987) at this time (see Appendix F). The Child Consumer Satisfaction Survey (CCSS; Block, Hood, & Radley, 2007) was also administered to treatment group participants immediately following the end of the treatment phase (see Appendix G).

Direct behavior observational data were collected each week through the treatment and follow-up phases using the same schedule for observations in each setting

as noted previously in the baseline phase for a total of 30 observations of treatment group participants in the treatment setting and 10 classroom free-play observations of both groups during the treatment phase. The follow-up phase included nine observations of treatment group participants during free-play in the treatment setting and three observations of participants from both groups during free-play in the classroom setting.

Treatment

The *Strong Start Pre-Kindergarten (Pre-K)* program was used as the curriculum to teach children in the treatment group positive social behaviors regarding understanding and managing their emotions and navigating social situations that are typically encountered by preschool aged children (Merrell et al., 2009). The program includes 10 lessons (see Table 3) which are typically presented once a week for 10 weeks. Each week a new skill was taught during the three weekly sessions. The procedure of the manual was modified to elongate the presentation of each weekly lesson over the course of 3days to enhance exposure to the material. Each session lasted approximately 30 minutes.

The skills taught during treatment were presented through therapeutic storytelling, explicit instruction, demonstration of skill, practice of skill, and activities related to the skills taught. Immediately after each *Strong Start* lesson, treatment group participants were observed for a 10-minute free-play period three times a week for the 10-week duration of the treatment phase using the same toys provided during the baseline phase. Treatment group and control group participants were observed together once weekly for a period of 10 weeks during regularly scheduled free-play period in the therapeutic classroom.

Parents were provided a weekly parent bulletin from the *Strong Start* manual which outlined home activities for each lesson. Parents received bulletins via mail with a self-addressed stamped envelope with a return ticket to indicate receipt and use of the parent bulletin with their child. Tickets were coded with a participant identification number and those that were returned were entered into a weekly drawing for a $20 gift card to a grocery store chain. Parents received additional chances to be entered in the weekly drawing by completing and returning the PKBS-2 and the posttreatment social validity questionnaire. Participants in the treatment group were also administered the Child Consumer Satisfaction Survey (CCSS) after the treatment phase ended. The CCSS was developed by Block, Hood, and Radley (2008; see Appendix G).

Enhancing the Effectiveness of Strong Start Pre-K

Gresham et al. (2001) note that increasing the number of sessions in social skills training is likely to result in greater generalization of skills. The use of a contingent reinforcement schedule has also been shown to be the most effective strategy for reinforcing and maintaining appropriate behaviors of children with externalizing disorders (Kehle, Brey, Theodore, Jenson, & Clark, 2000; Stage & Quiroz, 1997). Furthermore, the repetition of material being taught has been cited as one of the most effective strategies for helping students learn and remember new content (Gladwell, 2000; Gresham et al., 2001).

The current study extended the 10 lessons provided in the *Strong Start Pre-K* manual into mini-units, providing participants with greater exposure to the lesson content and additional opportunities to practice and develop skills. Each of the 10 lessons in the

Strong Start Pre-K manual was taught to the treatment group over the course of 3 days a week for approximately 30 minutes a day over 10 week period. In order to enhance the effectiveness of the lessons, the supplemental activities included in the *Strong Start Pre-K* program (designed to assist children in applying what was learned in the core lesson) were utilized in addition to the core lesson and the capstone activity. Children in the treatment group received the core lesson on Day 1 of the week; the lessons' supplemental activity was completed on Day 2 of the week; and the lesson capstone activity was implemented on Day 3 of the week.

Additionally, when children in the treatment group demonstrated the skill(s) taught in group or exhibited other positive social behaviors, they were rewarded with a good behavior ticket that was placed into a bag. At the end of the treatment session, a ticket was drawn from the bag for the "Strong Kid of the Day." The "Strong Kid of the Day" got to spin a behavioral spinner (Jenson, Rhode, & Reavis, 2009) and be the first to select from the designated rewards container corresponding to the spinner. Other children in the treatment group then got to also select a reward from the same container. Group rules were established during the first group lesson and posted in the room for each subsequent lesson. If the group rules were violated, it resulted in a negative ticket with a frown-face being placed into the communal jar. Negative tickets did not have any adverse consequences attached to them and only served as a negative reinforcement in and of themselves.

Participants

Participants in the current study were all enrolled in the therapeutic preschool. Parents of the children completed the Child Behavior Checklists (CBCL) among other social-behavioral measures at the time of enrollment. In order to assure child participants recruited for participation in the current study demonstrated sufficient externalizing behaviors, scores from the CBCL completed at enrollment were used as an inclusionary criteria. Children with clinically elevated scores on the externalizing behavior scale of the CBCL, according to the scale manual (Achenbach & Rescorla, 2000), were eligible to participate. The 11 child participants were between 4-5 years-old when the study began (see Table 5). Child participant 4 of the treatment group and child participant 10 of the control group withdrew from the therapeutic preschool during the last week of the treatment phase; therefore they did not participate in the follow-up.

Setting

The therapeutic preschool where the study took place is a family-centered mental health and therapeutic preschool agency specializing in the treatment of children with severe behavioral and emotional problems. *Strong Start Pre-K* was provided in an unoccupied classroom at the therapeutic preschool. The room set-up was the same as the classroom where the therapeutic preschool took place. Each therapeutic preschool classroom had a table and chairs for the children, and a carpeted area for play. Each room also included an observation room with a one-way mirror so that children could be observed in the classroom unobtrusively. Children routinely attend the therapeutic preschool 3 hours daily, 5 days a week. The *Strong Start Pre-K* lessons were provided in

a pull-out group format, whereby children were gathered from their respective classrooms and taken into the unoccupied classroom for the lessons to be taught. The observation periods also occurred in the same location.

Dependent Measures

Behavior Observations

Observational data were collected using a partial interval time sampling procedure (see Appendix A for the observation form and Appendix B for the peer comparison observation form). Weekly observations of all participants during regularly scheduled free-play activities in the classroom were video recorded. In addition, observations of participants' in the treatment group were video recorded three times a week. Each observation period was 10 minutes in length. Observation system forms were adapted by the PI from the Jenson et al. (2009) Behavior Observation Form. Baseline observations of participants took place three times a week in the treatment setting and once a week in the therapeutic classroom for a period of 3 weeks in order to ensure stable behavioral data; showing little or no change during a phase of data collection (O'Neill, McDonnell, Billingsley, & Jenson, 2011).

During the treatment phase, video recorded observations of the treatment group participants were made immediately following each of the treatment lessons to assess changes in all participants' pro-social and negative behaviors. Observations allowed for coding the following behaviors: Positive Verbalization, Positive Nonverbal Behavior, Aggressive Verbalization, Physical Aggression, Defiant Behavior, and Neutral Behaviors. Observational data were collected during the follow-up phase three times a

week for 3 weeks in the treatment setting and once weekly in the classroom setting. Behaviors coded during observations were based on the taxonomy categories provided by Caldarella and Merrell (1997), descriptions of aggressive behavior from Ross and Horner (2009), and the behavioral codes utilized by Hood (2011; see Table 6).

Observations in the treatment setting and in the classroom were video-recorded for later coding by trained graduate student research assistants. During the time-interval sampling of behavior, the first behavior to occur within the designated time interval was the behavior recorded on the observation recording form. The PI coded 100% of the observation periods, a secondary primary coder coded 50% of the videos, and two other graduate student research assistants coded 33% of the videos to establish interobserver reliability. Observational data were graphed and recorded in order to conduct visual analysis of behavior change, calculate percentage of nonoverlapping data, percentage of all nonoverlapping data, and effect size.

Observation periods were 10 minutes in duration and occurred during the baseline, treatment, and follow-up phases. Behavior observation periods were video-recorded and a voice over-lay was added to facilitate behavior coding. Behavior coding was completed using 10-second intervals; the voice over-lay on the 10 minute videos prompted each 10-second interval.

Since the PI of the current study was interested in the participants' ability to demonstrate increased pro-social skills and decrease in negative behaviors after receiving the *Strong Start Pre-K* curriculum lessons, a free-time observation period in the treatment setting occurred immediately following each lesson. Treatment setting free-time observations included the same toys used during the free-play observations during

baseline. In order to assess skill generalization, participants in the treatment group were also observed in the therapeutic preschool classroom with participants in the control group for a total of 16 times throughout the course of the study. Furthermore, to assess intervention fidelity, lessons were video recorded and reviewed for implementation accuracy.

Training of Behavior Coders

Coder training took place over the course of 3 weeks whereby the PI watched videos of children playing with coders to practice behavior coding. The video recordings of children playing were obtained from the PI's personal family videos. Children in the videos represented a mixture of preschool age boys and girls. The PI provided a voice layover on each video prompting the recording of behavior every 10-seconds. Four different 10-minute videos were used for behavior coding practice, each video including at least 6 children playing with toys. The PI and all three behavior coders watched the videos together for approximately 6 hours. During these group coding sessions, the PI would select 1 or 2 children from the video of whom their behavior was to be coded using the behavior coding forms used for the current study. The PI stopped the video after each prompt to record and discussed with the coders the behavior code selected for each interval. After 90% accuracy was achieved between the PI and coders, each coder was provided videos with children designated by the PI of whom behavior would be coded independently. The PI also coded the same videos independently and met independently with each coder to discuss agreements and disagreements in coding practice. Each coder practiced with independent coding until 90% accuracy with the PI was established.

Interobserver Agreement of Behavioral Observations

Video recording of *Strong Start Pre-K* lessons and treatment setting free-play observation periods allowed for later assessment of implementation fidelity and interobserver agreement. In addition to the PI, there were three other behavior coders. Each 10-minute observation period (three times a week for the 3-week baseline period, the 10-week treatment period, and the 3-week follow-up period) was coded by the PI. The three other behavior coders coded a random selection of the video recorded observations. The secondary coder coded 50% of the videos and the two other coders each coded another 30% of the videos. Point-by-point agreement and Kappa were calculated to determine interobserver agreement. Kappa is calculated through the following formula: $K = (Po-Pe) / (1 – Pe)$. *Po* is the observed proportion of agreement, and *Pe* is the proportion of agreement, and *Pe* is the proportion of agreement by expected chance. Kappa was calculated by entering each observer's codes into the Statistical Package for the Social Sciences (SPSS, 2013). Calculation of Kappa also allowed for correction of chance agreements between observers.

Behavioral Checklists

Preschool and Kindergarten Behavior Scale – Second Edition

The Preschool and Kindergarten Behavior Scales–Second Edition (PKBS -2; Merrell, 2002) is a 76-item two-part, Likert-type scale used for the assessment of social skills and problem behaviors of children ages 3-6. The Social Skills scale includes three subscales: social cooperation, social interaction, and social independence. The Problem Behaviors scale includes two subscales: Externalizing Problems and Internalizing

Problems. The PKBS-2 also includes five supplementary problem behavior scales that are optional. The scale has been standardized with a national sample of 3,313 students ages 3-6 years and has demonstrated high psychometric properties. Scales may be completed by multiple informants including teachers, parents, and other caregivers. The subscales of the Social Skills scale have an internal consistency (Cronbach's alpha) ranging from .88-.96 and the subscales of the Problem Behavior scale have an internal consistency (Cronbach's alpha) ranging from .90-.97 (Merrell, 2002).

The scores of the PKBS-2 are reported as standard scores with a mean of 100 and standard deviation of 15. A higher score on the Problem Behavior scale indicates greater levels of problem behavior. The risk levels associated with the PKBS-2 ratings reflect the highest problematic behavior area (5% in the high risk; and 5-15% for moderate risk).

Preschool Behavior and Emotional Rating Scale

The Preschool Behavior and Emotional Rating Scale (PreBERS; Epstein & Synhorst, 2009) is a standardized, norm-referenced 42-item Likert-type scale used for the assessment of preschool children's behavioral and emotional strengths. The PreBERS can be completed by multiple informants including parents, teachers, psychologists, counselors, or other professionals working with preschool aged children. The PreBERS includes four subscales: emotional regulation, school readiness, social confidence, and family involvement and takes approximately 10 minutes to complete. A strengths index is calculated by summing all four subscales. For purposes of the current study, only teachers completed the measure and only the Emotional Regulation and Social Confidence subscales were used. The Emotional Regulation subscale consists of 13 items

and the Social Confidence subscale consists of nine items. The PreBERS has been demonstrated to have good reliability and validity. The Emotional Regulation subscale has an internal consistency (Cronbach's alpha) of .96 and the Social Confidence subscale has an internal consistency (Cronbach's alpha) of .91 (Epstein & Synhorst, 2009). It should be noted that the normative sample for the PreBERS consisted of 1,471 preschool children ranging in age from 3 years, 0 months to 5 years, 11 months (all U.S. samples).

Child Behavior Checklist for Ages 1 ½-5 – Caregiver-Teacher Rating Form

The Child Behavior Checklist for Ages 1 ½-5 – Caregiver-Teacher Rating Form (C-TRF; Achenbach & Rescorla, 2000) is a 99 item questionnaire. The questionnaire asks informants to describe problems, concerns, and personal strengths of the child being rated. The C-TRF also has composite scales for internalizing, externalizing, total problems, and total stress problems. For the purposes of the current study only the 34 item externalizing scale was utilized. The C-TRF has been shown to be a reliable and valid measure of behaviors, with the internal consistency for the C-TRF Externalizing scale ranging from .87-.89 (Achenbach & Rescorla, 2000). The normative sample of the C-TRF included 1,192 children ranging in age from 1 year, 6 months to 5 years, 11 months (all U.S. samples). Rating scores on the T-CRF reflect the average range of functioning when the score falls below 60, the Borderline range of functioning when scores fall between 60 and 63 and within the clinically significant range when the score falls at or above 64. The parents of all participants completed the pre- and posttest measures and all the participants' teachers also completed pre- and posttest measures.

Consumer Satisfaction Questionnaires

Behavioral Intervention Rating Scale

The Behavioral Intervention Rating Scale (BIRS; Von Brock & Elliott, 1987) is a 24-item, 6-point Likert-type scale used to assess treatment efficacy. Responses range from Strongly Agree to Strongly Disagree. The BIRS was adapted for the purpose of the current study and administered to parents and teachers of treatment group participants postintervention to evaluate parent and teacher judgments of the effectiveness of the *Strong Start Pre-K* program.

Child Consumer Satisfaction Survey

The Child Consumer Satisfaction Survey (CCSS), developed by Block et al. (2008) is a brief 5-item, 5-point Likert-type scale used to assess participants' satisfaction of the program. Only child participants of the treatment group were administered the CCSS. Response options range from Really Disagree to Really Agree. Item responses and total scores were used to evaluate the participants' perceived satisfaction with the *Strong Start Pre-K* program.

Treatment Fidelity

The lesson objectives stated in the Strong Start Manual were utilized in order to assess for treatment fidelity. The PI used the objective checklist to mark when each objective was met following the completion of the weekly lessons. A graduate research assistant coded the lesson objectives from 33% of the videotaped lessons to ensure the accuracy of treatment implementation. The percentage of program objectives met was

divided by the total number of program objectives in order to obtain a percentage of treatment fidelity.

Design

Data analysis was completed using an A-B single-subject design with a follow-up phase; however, the current study also utilized a control group to assess for effects of treatment by comparing children who had received the intervention with the control group of children who received treatment as usual. Participants were observed a total of 9 times during treatment setting free-play baseline sessions, a total of 30 times during the treatment phase, and an additional 9 times during the post-treatment phase. The children in the treatment and comparison groups were also observed in the preschool classroom during regularly scheduled free-play during the treatment phase of the study in order to obtain peer comparison data for a total of 16 observations.

Participants in the current study were randomly assigned to the treatment group or control group. Participants assigned to the treatment group received the *Strong Start Pre-K* group pull-out during regular preschool hours and control group participants received therapeutic preschool only. The study consisted of three phases: baseline, treatment, and follow up. During each phase, observation sessions were video recorded for later behavior coding. Behavior rating scales were disseminated to parents and preschool teachers during the baseline and follow-up phases.

Method of Data Analysis

An A-B single-subject design with a follow-up phase was used to assess the effectiveness of the *Strong Start Pre-K* program. Observational data were collected during the initial baseline (phase A) for each participant in the treatment group a total of 12 times; 9 times during treatment setting free-play and 3 times during regularly scheduled free-play in the classroom. Data on negative behavioral interactions collected during the treatment setting free-play sessions served as the criterion for behavioral data stabilization during the baseline. Observations of participants continued throughout the treatment phase (phase B) of the study utilizing the same observation format as the initial baseline: three 10-minute observations weekly after each group session and once weekly for 10 minutes during classroom free-play for a total of 10 weeks. During the 3-week follow-up phase, observations of participants continued in both posttreatment and classroom settings utilizing the same observation schedule used during baseline and treatment phases. That is, treatment setting free-play observations took place three times weekly and once weekly during regularly scheduled free-play in the classroom during the posttreatment phase. Data collected on negative behavioral interactions during treatment setting free-play sessions were utilized as a criterion to determine need for booster session administration. If participants demonstrated an increase in negative social interactions during treatment setting behavioral observations for three consecutive observation periods during the posttreatment phase, that were above the average number of negative behavioral interactions for the last three treatment setting observations during the treatment phase, booster sessions would have been provided to participants. Pre- and

posttreatment scores of behavior rating scales and checklists were also compared to assess for changes in behavior.

The percentages of observed intervals in which behaviors were demonstrated were calculated for each participant during the baseline, treatment, and posttreatment phases. Effect sizes were then calculated using the Busk and Serlin (1992) no assumptions model for the treatment and control groups. Interpretation of effect sizes followed the guidelines of Cohen's (1988) standards for interpretation: a small effect size ranges between 0.1-0.3, a moderate effect size 0.3-0.5, and a large effect size of 0.5 and larger.

Percentage of Nonoverlapping Data (PND; Scruggs, Mastropieri, & Casto, 1987) was also calculated and graphed. Calculating PND involves determining the number of intervention data points with a value above the highest baseline data point value, then dividing the number of nonoverlapping data points by the total number of intervention data points. PND was determined for each treatment and control group participant. Group effects were assessed through the analysis of the Percentage of All Nonoverlapping Data (PAND) points and effect size calculations for the group.

Although calculation of PND is a commonly utilized method of analysis for individual participant data in single-subject design, its utility is limited by lack of ability to account for outlying data points in the baseline and ability to account for magnitude of change. In the current study, variability in data may have impacted PND and PAND outcomes. Calculation of PAND utilizes the data of the whole group to calculate a percentage of behavior occurrences and is less susceptible to outlying data-points than PND. To account for treatment effects of individual participants, the Busk and Serlin

(1992) no assumptions model was utilized to calculate effect size instead of a Cohen's *d* based on PAND because Cohen's *d* derived from PAND may produce extremely conservative effect sizes due to outlying data-points. The no assumptions model provides one of the most conservative effect sizes for single subject research designs (Jenson, Clark, Kircher, & Kristjansson, 2007) without being susceptible to the influence of outlying data points.

Threats to internal validity are present when utilizing a single-subject research design, so the current study followed the guidelines presented by Kazdin (1981) and Kratochwill (1985) as was feasible. Kazdin (1981) and Kratochwill (1985) concluded the validity of single-case design research design can be controlled when: there is objective assessment of data across multiple occasions, pre- and postmeasures are included, and a heterogeneous group is used. Additionally, Kratochwill (1985) advises that single-case study designs use a formal design structure, maintain fidelity of intervention strategies, use a social validation measure, and use data analysis. The current study meets the criteria for controlling for single-subject research design internal validity threats as outlined by Kazdin (1981) and Kratochwill (1985) with the exception of the heterogeneous group of participants. Assessments of positive social skill interactions as well as monitoring for reductions of antisocial behaviors were conducted multiple times during the course of the study and the intervention being evaluated consists of structured lessons.

Individual participant data were analyzed through the visual analysis of baseline, treatment, and posttreatment means that were calculated through the descriptive statistics function on SPSS. Visual analysis of data is a frequently utilized method for single-

subject design research studies to determine treatment effects. The Percentage of Nonoverlapping Data Points (PND) and Percentage of All Nonoverlapping Data Points (PAND) are methods of single-subject data analysis that are considered to be superior to visual analysis alone because it decreases the chance for differences in data interpretation.

Since PAND is a conservative estimate of variability and effect size is a measure of magnitude change, both of these measures were utilized as methods of data analysis. The calculation of ES provides an objective measure of change that is sensitive to positive trends that may be present during the baseline and is thought to be more credible than visual analysis of the data.

Busk and Serlin's (1992) no assumptions model was utilized to calculate ES to determine the extent to which the treatment was effective. The Busk and Serlin (1992) no assumptions model is considered to be one of the most conservative methods when calculating ES (Jenson et al., 2007). Using this model, ES is calculated by determining the percentage of intervals in which children engaged in behaviors of interest during baseline, treatment, and posttreatment phases of the study. No assumptions effect size is calculated by dividing the difference between the mean number of behaviors during the baseline phase by the mean number of behaviors during the treatment and posttreatment phases by the pooled standard deviation of the baseline for each subject.

Pooled standard deviation was calculated using the following formula: *SDpooled=Square root(((N1-1)*SD1squared))+(N2-1)*SD2squared))/(N1+N2)*. Cohen's d ES construct was calculated with the following formula: *d = (M2-M1)/SDpooled.* Confidence Intervals (CI) were calculated for each ES in order to provide

a measure of reliability for ES using the following formula: *CI = +/- (1.96*SD2sqaured/SQRT(N1+N2)*.

Table 5

Participant Demographics

Participant	Age	Sex	Ethnicity	Parent CBCL T score	Time enrolled at therapeutic Preschool
			Treatment Group		
1	4:5	Male	Caucasian	79	17 months
2	4:5	Male	Hispanic	95	4 months
3	4:6	Male	Caucasian	65	5 months
4	5:2	Male	Caucasian	73	4 months
5	4:6	Male	Caucasian	95	7 months
6	5:3	Female	African American	77	10 months
			Control Group		
7	4:5	Male	Caucasian	89	5 months
8	4:10	Male	Asian American	73	5 months
9	4:4	Female	Caucasian	68	7 months
10	5:3	Male	Caucasian	65	17 months
11	4:9	Male	Caucasian	74	5 months

Table 6

Definitions of Targeted Behaviors

Positive Behaviors	Negative Behaviors
Positive Verbalization: complementing peers, offering help to others, requesting help from others, inviting peers to play, encouraging others, responds appropriately to criticism, initiating positive conversations with peers, acknowledging compliments from others, politely declining if asked to join play and does not want to join and showing comfort to others.	**Verbal Aggression:** direct verbal communication such as: using profane language, yelling/screaming, whining to coerce others into giving them their way, threatening others, teasing, taunting, or name calling.
Positive Nonverbal Behavior: joining in activities when asked, responding to greetings/conversations of others, positively joining in play with peers, responds appropriately and politely when hit or pushed by sharing toys another, using positive bodily gestures, and positively taking place in a game/group play.	**Physical Aggression:** hitting, choking, throwing objects, restricting the movement of others, using physical force, pushing, biting, kicking, taking away toys or belongings of a peer, using negative bodily gestures, and spitting or negative gestures.
	Defiant Behavior: child ignores, defies, or does not respond to a request from an adult within 3-5 seconds (used only with adult instruction).
Neutral Behavior: solitary or parallel play in which there is no interaction with peers.	

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CHAPTER III

RESULTS

Treatment Integrity

The *Strong Start Pre-K* program manual was followed by the Primary Investigator (PI) to assure each part of each lesson was implemented. The PI scored 100% of the video recorded lessons and another graduate student coded 33% of the lessons to assess accuracy of program implementation. Each lesson within the manual includes a lesson objectives checklist in addition to the scripted lesson components for each lesson. Lesson objectives checklists and scripts for the lessons were used to determine the degree to which lessons were implemented with integrity. The PI completed the objectives checklist after each lesson and a graduate student independently completed the objectives checklist for 33% of the lessons. Interobserver Agreement (IOA) was computed by dividing the number of agreements by disagreements for each step of the checklist between observers. The mean agreement between observers ranged between 80-100% with a mean agreement of 91%.

Interobserver Agreement on Child Behavior

In order to assess accuracy of data on direct observation of child behavior, IOA was assessed throughout the duration of the current study. The PI practiced behavioral coding with three graduate students observers until 90% IOA was obtained. Interobserver agreement was calculated for the behavioral observations during treatment setting free-play and regularly scheduled free-play in the preschool classrooms. The PI, as the primary observer, coded 100% of treatment setting and classroom free-play sessions, observer 2 coded a randomly selected 50% of the free-play sessions, and observers 3 and 4 each coded a randomly selected 33% of all free-play sessions via video-recordings. Due to multiple observers and random selection of video recorded free-play sessions to be coded, some videos were coded by the PI and two other observers; results represent the agreement between the PI and each of the observers. Interobserver agreement between the PI and the other observers yielded overall acceptable levels of agreement (see Table 7).

Percentage of agreement was calculated by dividing the number of total interval agreements for the occurrence of each behavior for each category by the number of disagreements plus agreements. Through examination and discussion with coders, the PI determined instances of lower rates of IOA were primarily due to errors of omission, that is, the behavior took place but was not recorded by one of the coders. It is not uncommon in observational research for an observer to make errors of omission if they are not sensitive enough to the behaviors being observed (Bakeman, Quera, & Gnisci, 2010).

Kappa was calculated in order to determine the proportion of agreement between raters while correcting for chance. Kappa results yielded acceptable agreement between

the primary and secondary coders. The Kappa calculation between the PI and each of the graduate student coders ranged from .81 to .88, with each Kappa yielding agreement in the very good range of rater agreement according to the guidelines provided by provided by Landis and Koch (1977; see Table 7). Interobserver agreement and Kappa were calculated for all observation periods in both observation settings (treatment setting and classroom).

Research Questions

Free-Play Behavior Observations in the Treatment Setting

This section will address research questions 1a/b with regard to observational data obtained during a treatment setting free-play time following treatment sessions for treatment group participants. Treatment setting free-play took place in the treatment setting where the *Strong Start Pre-K* lessons were presented and were collected three times a week during each phase of the study.

Research Question 1a

Research question 1a was: *What are the effects of the Strong Start Pre-K social emotional learning program on positive social interactions of preschool children with clinically elevated externalizing behaviors during a treatment setting free-play period with treatment group peers?*

Video recordings of treatment setting free-play time observations were coded using a partial interval observation system (see Appendix A). Children's interactions were coded by determining the number of 10-second intervals within a 10-minute

observational period where children demonstrated specific positive and negative behaviors. Observational data were used to calculate Percentage of Nonoverlapping Data (PND), Percentage of All Nonoverlapping Data (PAND), and no assumptions effect size (Busk & Serlin, 1992) to determine the extent to which the treatment was effective.

The average engagement in positive verbalization and positive nonverbal behavior of the participants of the treatment group increased slightly from baseline to the treatment phase (see Table 8). Positive verbalizations included verbalizations to initiate play, make a request, complement or encourage peers, politely responding to requests or actions of others, and appropriate verbal responses to the criticisms of peers. Positive nonverbal behavior included physical behaviors such as joining in playing with peers, physical sharing of toys, and positively taking part in a game or group play. Visual analysis of the average engagement in positive verbalizations by participants of the treatment group revealed little change in the level and slight increases throughout the treatment phase; the average positive verbalization data revealed low variability (see Figure 1). The group's average engagement in positive nonverbal behavior during treatment setting free-play demonstrated an upward trend and change in level with relative data stability (see Figure 2). PAND and effect size calculations utilizing baseline to treatment data reveal an overall small change for Positive Verbalizations (PAND = 32%, ES = .27) and positive nonverbal behavior (PAND = 61%, ES = .24; see Table 10). Examination of individual participant data for PND and no assumption effect sizes revealed larger changes in positive verbalization for Participant 2 and in positive nonverbal behavior for Participants 1and 5 (see Table 9).

Research Question 1b

Research question 1b was: *What are the effects of the Strong Start Pre-K program on negative social interactions of preschool children with clinically elevated externalizing behaviors during a treatment setting free-play period with treatment group peers?*

Verbal and physical aggression by treatment participants demonstrated small decreases from baseline to the treatment phase (see Figure 3-4). Physical aggression is behavior conducted in an outwardly physical manor (e.g., slapping, grabbing) and verbal aggression included instances of yelling, screaming, and name calling. Visual analysis of treatment group data revealed an overall decrease in the trend and level for verbal aggression and physical aggression. However, it is important to note rates of physical aggression were quite low to begin with in the baseline phase (see Table 8). Defiance did not measurably change from zero occurrences during observations throughout the study (see Figure 5). The average engagement in neutral behavior for the treatment group during treatment setting free-play time observations did not change between the baseline and treatment phases (see Figure 6).

PAND and effect size calculations utilizing baseline to treatment phase data yielded a decrease in verbal aggression (PAND = 26%, ES = -.01), and physical aggression (PAND = 33%, ES = -.51) during the treatment setting free-play observations. The treatment group's average defiance did not measurably change; therefore a no assumptions effect size was not calculated for defiance (PAND = 0%). A small decrease for neutral behavior was yielded from baseline to treatment (PAND = 41%, ES = -.21; see Table 10). Examination of individual data yielded small changes in behavior

according to PND calculations with exception of participant 5 (see Table 11); however, effect size calculations showed larger decreases in verbal aggression of Participant 5, physical aggression for Participants 2 and 5, and the neutral behavior of Participant 1.

Free-Play Behavior Generalization Observations in the Therapeutic Classroom Setting

This section will address research questions 2a/b with regard to observational data obtained for both the treatment and control group participants during free-play in the therapeutic preschool classroom. Free-play time observations in the therapeutic classroom were conducted once a week during each phase of the study. Each child who participated in the *Strong Start Pre-K* group was observed during regularly scheduled free-play in the therapeutic preschool classroom with a group of peers utilizing a partial interval behavior observation form (see Appendix B). Visual analysis, PND, PAND, and effect size calculations were used to determine the extent to which the treatment was effective for each participant.

Research Question 2a

Research question 2a was: *What are the effects of the Strong Start Pre-K program on positive social interactions compared to data from peers not participating in the Strong Start Pre-K program but receiving the standard therapies in the therapeutic preschool program?*

Overall, positive verbalizations by treatment group participants slightly increased, while positive nonverbal behavior in the classroom showed no increase from baseline to

the treatment phase (see Table 8). Visual analysis of the average engagement in positive verbalizations by participants of the treatment group revealed little change in the level and slight increases in trend throughout the treatment phase; the average positive verbalization data revealed slight variability (see Figure 7). The average engagement in positive verbalization by participants of the control group revealed no change in level, trend, or phase of the data. Average engagement in positive nonverbal behavior by participants of the treatment group did not demonstrate substantial change in trend, level, or phase in level with relative data stability (see Figure 8). The average engagement in positive verbalization and positive nonverbal behavior data for the control group showed no substantial changes from baseline to the treatment phase (see Figures 7-8 and Table 11).

Baseline to treatment PAND and effect size calculations (see Table 12 and 13) increased slightly for the treatment group participants positive verbalizations (PAND = 45%, ES = .61) and positive nonverbal behaviors (PAND = 48%, ES = .09). Control group participants positive verbalization (PAND= 35%, ES = -.37) and positive nonverbal behavior (PAND = 25%, ES = -.92) decreased slightly from baseline to treatment.

Research Question 2b

Research question 2b was: *What are the effects of the Strong Start Pre-K program on negative social interactions compared to data from peers not participating in the Strong Start Pre-K program but receiving the standard therapies in the therapeutic preschool program?*

Visual analysis of data for engagement in verbal aggression revealed no substantial change in the level or trend for either participants of the treatment or control group (see Figure 9 and Table 14). Visual analysis of physical aggression data revealed a slight decreasing trend for participants of the treatment and control groups' (see Figure 10). Rates of verbal aggression and physical aggression were very low in the baseline phase for both groups, and showed little change during the treatment phase. Visual analysis also revealed very little evidence of defiant behavior from either group in the classroom setting across all phases of the study (see Figure 11). Neutral behavior remained relatively stable for both groups across all phases of the study but did not reveal substantial change in trend or level (see Figure 12).

Calculation of PAND and no assumption effect sizes yielded a small decrease in verbal aggression (PAND = 30%, ES = -.38) and physical aggression (PAND = 40%, ES = -.81) of the treatment group participants (see Table 15). Treatment group average engagement in defiance calculations yielded no change (PAND = 0%). Engagement in neutral behavior by treatment group participants decreased slightly from baseline to treatment (PAND = 30%, ES = -.15). PAND and no assumption effect size calculations for control group participants yielded decreases in verbal aggression (PAND = 70%, ES = -.51) and physical aggression (PAND = 90%, ES = -.65; see Table 16). Control group participants' engagement in defiance did not change baseline-treatment (PAND = 0%, ES = .58). PAND and effect size calculations indicated an increase in neutral behavior for control group participants from baseline to treatment (PAND = 0%, ES = 1.16).

Checklist Ratings for Negative Behaviors

This section will address Questions 3 and 4 with regard to parent and teacher ratings of the treatment and control group participants' behavior change according to ratings on behavior questionnaires.

Research Question 3

Research question 3 was: *Does participation in the Strong Start Pre-K program result in reduction of negative behaviors as reported by teachers and parents on the pre- and posttreatment behavior checklists?*

Changes in negative behavior were analyzed using descriptive statistics for teacher and parent ratings on the PKBS-2 problem behavior scale and the ratings from the T-CRF externalizing scale.

Parent Ratings

The average parent ratings on the PKBS-2 problem behavior scale for participants of the treatment group decreased from pre- to posttest (see Figure 13; Table 17). Whereas the average parent ratings were in the "high risk" range before treatment, the ratings dropped to the moderate or average risk range following treatment. These results indicate that parents noticed an overall decrease in total problem behaviors for treatment group participants. Parents of control group participants on the other hand, showed an increase of problem behaviors across the same time period as the treatment group. In other words, the ratings on the PKBS-2 problem behavior scale increased from the time of the pre- to posttest period with scores changing overtime from the average range to high risk for

control group participants (see Figure 14; Table 18).

Teacher Ratings

Teacher ratings for treatment group participants on the problem behavior scale of the PKBS-2 did not demonstrate any significant change from pre- to posttest. The average rating of treatment group participants according to preschool teacher #1 fell within the average range at time of pre-and posttest (see Figure 15; Table 17). The average ratings from preschool teacher #2 for treatment group participants did not change significantly from pre- to posttest with both ratings falling within the moderate risk range (see Figure 16; Table 18).

On average ratings of the control group participant behaviors by preschool teacher #1 pre- and posttest on the problem behaviors scale fell within the average range of functioning (see Figure 17; Table 17). On average, the ratings from the preschool teacher #2 of the control group participants fell within the average range of functioning pre- and posttest. Teacher ratings remaining within the average range indicate there no increased concerns for the problem behaviors of the control group at time of pre- or posttest (see Figure 18; Table 18).

The average teacher rating on the externalizing scale of the Achenbach T-CRF for the treatment group participants decreased slightly from the clinical range of functioning to the borderline range of functioning. On average, the ratings by teachers of the control group participants also decreased; however the pre- and posttest ratings were both within the normal range of functioning (see Figure 19; Table 19).

Checklist Ratings for Social Skills

Research Question 4

Research question 4 was: *Does participation in the Strong Start Pre-K program result in increases in positive social skills as reported by teachers and parents on pre- and posttreatment behavior checklists?*

Changes in the positive social skills of participants for each group were analyzed using Cohen's (1988) effect size construct, ratings from the PKBS-2 Social Skills subscale, and Preschool Behavioral and Emotional Rating Scale (PreBERS) Emotional Regulation and Social Confidence subscales. Higher PKBS-2 Social Skills subscale scores indicate a greater level of social skill competence. Scores on the PreBERS are scaled scores with a mean of 10 and a standard deviation of 3.

Parent Ratings

Overall, treatment group participants parent ratings on the PKBS-2 Social Skills scale improved from the moderate risk-level range to the average range. The average parent ratings for control group participants also improved from the moderate range to the average range from pre- to posttest. Ratings indicate parents of participants from both groups perceived social skill gains in their child over the course of the study regardless of which group the child was assigned (see Figures 20-21; Table 20-21).

Teacher Ratings

Overall, the average teacher rating on the Social Skills scale on the PKBS-2 for the participants of the treatment group decreased slightly pre- to posttest for preschool

teacher #1; however, both pre- and posttest ratings fell within the average range (see Figure 22; Table 20). On average, ratings of the treatment group participant's social skills according to the preschool teacher #2 increased pre- to posttest moving from the moderate risk range to the average range (see Figure 23; Table 20). Ratings of the control group participants by preschool teacher #1 remained the same pre- and posttest falling within the average range of skill (see Figure 24; Table 21). The average ratings of preschool teacher #2 of participants in the control group decreased slightly although an average of both ratings fell within the average range (see Figure 25; Table 21).

Average teacher ratings on the PreBERS fell within the average range of functioning on the emotional regulation and social confidence subscales. Ratings by preschool teacher #1 on the emotional regulation subscale for treatment group participants increased slightly; however, pre- and posttest ratings fell within the average range (see Figure 26; Table 22). The average rating of preschool teacher #1 for treatment group participants on the Social Confidence subscale increased minimally and both pre- and posttest scores fell within the average range. The average rating of preschool teacher #2 on the Emotional Regulation subscale for the treatment group changed from the below average range to the average range pre- to posttest. Average ratings by preschool teacher #2 of the treatment group participants on the Social Confidence subscale remained in the average range pre- to posttest (see Figure 26; Table 22). Ratings of the control group from both preschool teachers increased from pre- to posttest on the Emotional Regulation and Social Confidence subscales; however, while ratings of both preschool teachers increased, they remained within the average range from pre- and posttest. Ratings indicate the preschool teacher's perception of control group participants' emotional

regulation and social confidence was within the average range pre- and posttest (see Figure 27; Table 23).

Social Validity

The following section will address research questions 5 and 6 with regard to the social validity of the *Strong Start Pre-K* program.

Research Question 5

Research question 5 was: *Do parents and preschool teachers of participants find Strong Start Pre-K to be a socially valid intervention?*

Social validity was analyzed with descriptive statistics from data collected from an adapted version of the Behavior Intervention Rating Scale (BIRS; see Appendix F). The BIRS was disseminated to parents and preschool teachers after the final session of *Strong Start Pre-K*. Responses were rated on a 6-point Likert scale (1=strongly disagree, 2=disagree, 3=slightly disagree, 4=slightly agree, 5=agree, 6=strongly agree). Parents and preschool teachers of the treatment group participants completed the BIRS. Overall, parents rated the program favorably (M=5.05) and preschool teachers rated the program as slightly less favorable than the parents (M=4.25). The combined parent and teacher overall rating of the intervention was favorable (M=4.64) (see Table 24).

Research Question 6

Research question 6 was: *Do child participants find Strong Start Pre-K to be an enjoyable experience?*

The treatment group's perception of *Strong Start Pre-K* as an enjoyable experience was examined using descriptive statistics from data collected from Child Consumer Satisfaction Survey (CCSS; see Appendix G). The CCSS was administered to the treatment group participants directly following the last treatment session. As previously noted, Participant 4 withdrew from the therapeutic preschool and the study by the last treatment session, thus he was not able to complete the last week of treatment sessions, but his parent completed the survey with him at the time he left the program. For all the other treatment group participants, the CCSS was administered individually by the PI. The PI explained the possible answers to the participant, read each question aloud, and gave the participant time to circle their answer. The possible responses were to "Circle the face under the (1) if you really disagree with the statement, the face under the (2) if you disagree with the statement, the face under the (3) if you kind of agree, the face under the (4) if you agree with the statement, and the face under the (5) if you really agree. The faces on the CCSS were smiley or frowning face to match the rating on the scale. Overall the participants' responses to questions on the CCSS indicated that they enjoyed participating in the *Strong Start Pre-K* group (M=4.54; see Table 25).

Supplemental Research Questions

The following supplemental research questions address maintenance of behavioral change for treatment group participants in the follow-up phase.

Research Question 7

Research question 7 was: *If there are increases in positive social interactions of participants of the Strong Start Pre-K program, are these increases maintained after cessation of the Strong Start program?*

Treatment setting Free-Play Baseline to Follow-up Comparisons

Visual analysis of baseline and follow-up phase data for treatment group positive verbalizations demonstrated a small increase from baseline to treatment but slight decline during the follow-up phase returning toward baseline (see Figure 1). The positive nonverbal behavior data revealed an increase in the level, which was maintained in the follow-up phase (see Figure 2). PAND was not calculated for the baseline to the follow-up phase comparisons due to the low number of data points. Calculations of no assumptions effect size utilizing baseline and follow-up data indicated an increase in treatment group participants engagement in positive verbalization (ES = .65) and positive nonverbal behavior (ES = .94; see Figure 1-2, Table 26).

Classroom Behavior Generalization Observations: Baseline to Follow-up

Overall, rates of positive verbalization by treatment group participants did not change from baseline to follow-up phase, while positive nonverbal behavior decreased for the duration of the baseline phase and continued to show a decrease in the follow-up phase. The average engagement in positive verbalization and positive nonverbal behavior

data for the control group showed no substantial changes from baseline to follow-up (see Figures 7-8).

Effect size calculations for baseline and follow-up data indicated some increase moderately in engagement in positive verbalizations by the participants of the treatment group (ES = .50) but a small change in positive nonverbal behavior (ES = .12; see Table 27). Calculation of effect size for control group participants' engagement in positive verbalizations indicated a decrease (ES = -.31) but a slight increase for engagement in positive nonverbal behaviors (ES = .18; see Table 28).

Research Question 8

Research question 8 was: *If there are decreases in negative behaviors of participants of the Strong Start Pre-K program are these decreases maintained after cessation of the Strong Start Pre-K program?*

Treatment Setting Free-Play

Baseline to Follow-up

Rates of verbal aggression and physical aggression decreased slightly from baseline to follow-up phase; however, treatment group participant's engagement in verbal aggression and physical aggressions were low during baseline. Visual analysis of the group's average engagement in verbal aggression and physical aggressions revealed maintenance of very low levels of these behaviors in the follow-up phase. Non-engagement in defiance did not change baseline to follow-up. Engagement in neutral behavior showed a slight decrease by the beginning of the follow-up phase only to

slightly increase toward baseline levels in the final week of the follow-up phase. No assumptions effect size calculations indicated an overall decrease in the average engagement of treatment group participants' in verbal aggression (ES = -.96), physical aggression (ES = -1.16), and neutral behavior (ES = -.70) (see Table 29). Participant 4 was not included in the calculations between the baseline and the follow-up phases because Participant 4 withdrew from the study at the end of the treatment phase. Including Participant 4 would have resulted in an inflated posttreatment group effect size. Participants 1, 2, and 5 made gains in positive verbalization and positive nonverbal behavior according to effect size calculations.

Classroom Behavior Generalization Observations:

Baseline-follow-up phases

Visual analysis of data for engagement in verbal aggression during classroom free-play time observations did not reveal a clear change in trend or level for either group. Rates for verbal aggression and other physical aggressions for treatment and control group participants were very low from baseline to follow-up but the slight decrease for both groups was maintained throughout the follow-up phase. No change in defiant behavior was observed in the therapeutic classroom for either group. Engagement in neutral behavior for both groups did not show substantial change baseline to follow-up; however, an increase in neutral behavior was observed in the final week of data collection for control group participants.

According to effect size calculations, a decrease was found for engagement in verbal aggression for treatment group (ES= -.95) as well as control group participants

(ES= -.80). The decrease in physical aggressions, although slight, was maintained throughout the follow-up phase for the treatment group (ES = -.81) and control group participants (ES = -2.16). Average defiant behavior levels maintained at zero occurrences throughout follow-up. Effect size calculations indicated little change in neutral behavior for treatment group participants (ES = -.05) and control group participants (ES = .26; see Table 30-31).

Research Question 9

Research question 9 was: *If a booster session was needed, do participants demonstrate a decrease in negative social interactions and/or increases in positive social interactions after receiving the booster sessions?*

To determine the need for booster sessions, data from the follow-up phase of treatment setting free-play time observations in the treatment setting were compared to the last three data points collected during the treatment phase. Need for booster sessions was not evident since participants in the treatment group did not exhibit a consistent increase in negative behaviors across three data points during the follow-up phase and during treatment setting free-play time observations in the treatment setting. For this reason, this analysis was not completed.

Table 7

Observer Agreement and Cohen's Kappa

	Positive Verbalization	Positive Nonverbal Behavior	Physical Aggression	Verbal Aggression	Defiant Behavior	Neutral Behavior	Kappa
PI/Coder1 Agreement	85%	87%	84%	76%	29%	93%	.81
PI/Coder2 Agreement	86%	92%	91%	88%	80%	95%	.88
PI/Coder3 Agreement	87%	91%	91%	87%	67%	90%	.83

Note: PI refers to Primary Investigator

Table 8

Average Treatment Group Engagement in Behaviors during Treatment Setting Free-Play

	Baseline	Treatment	Follow-up
Positive Verbalization	9%	11%	17%
Positive Nonverbal Behavior	26%	33%	38%
Physical Aggression	6%	3%	0%
Verbal Aggression	2%	3%	0%
Defiant Behavior	0%	.3%	0.2%
Neutral Behavior	55%	53%	45%

Note: percentages are out of a 10 minute observation period

Table 9

Treatment Group Positive Social Interactions Treatment Setting Observation Results:

Effect Sizes and Confidence Intervals Baseline to Treatment

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	No Assumption ES Average	PAND
Positive Verbal ES	.47	.72	-.68	.33	.26	.21	.27	32%
95% CI	0.43 to .50	.71 to .75	-.66 to -.69	.31 to .35	.23 to .29	.18 to .23	.29 to .25	
Positive Verbal PND	10%	24%	0%	9%	10%	17%		
Positive Nonverbal Behavior ES	.92	-.36	.57	-.55	1.34	-.08	.24	61%
95% CI	.86 to .97	-.26 to -.45	.50 to .64	-.62 to -.48	1.17 to 1.30	-.14 to -.03	.31 to .18	
Positive Nonverbal Behavior PND	35%	0%	20%	0%	55%	24%		

Note: ES = Effect Size CI = Confidence Interval

Table 10

Treatment Group Negative Social Interactions Treatment Setting Observation Results:

Effect Sizes and Confidence Intervals Baseline to Treatment

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	No Assumptions ES Average	PAND
Physical Aggression ES	.09	-.38	-.41	-.18	-2.58	.22	-.51	33%
95% CI	.07 to .12	-.35 to -.40	-.39 to -.42	-.21 to -.16	-2.60 to -2.57	.21 to .24	-.49 to -.52	
Physical Aggression PND	0%	0%	20%	10%	100%	0%		
Verbal Aggression ES	.37	.45	-.72	.07	-1.02	.34	-.01	26%
95% CI	.34 to .39	.44 to .46	-.71 to -.72	.05 to .09	-1.03 to -1.00	.33 to .35	0 to .02	
Verbal Aggression PND	0%	0%	40%	0%	40%	0%		
Defiant Behavior ES	.65	--	.27	.29	.31	.59	.53	0%
95% CI	.65 to .66	--	.27 to .27	.29 to .30	.32 to .32	.59 to .60	.53	
Defiant Behavior PND	0%	0%	0%	0%	0%	0%		
Neutral ES	-1.53	.28	-.28	.51	-.41	-.09	-.21	41%
95% CI	-1.48 to -1.58	.18 to .37	-.21 to -.34	.44 to .57	-.49 to -.34	-.15 to -.03	-.14 to -.27	
Neutral PND	0%	0%	0%	0%	0%	0%		

Note: ES = Effect Size CI = Confidence Interval

Table 11

Average Participant Engagement in Positive Social Interactions

During Classroom Free-Play Observations

	Treatment Group			Control Group		
	Baseline	Treatment	Follow-Up	Baseline	Treatment	Follow-Up
Positive Verbalization	5%	9%	8%	6%	5%	6%
Positive Nonverbal Behavior	32%	33%	33%	43%	31%	39%

Note: percentages are out of a 10 minute observation period

Table 12

Treatment Group Positive Social Interactions Classroom Observation Results:

Effect Sizes and Confidence Intervals Baseline to Treatment

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	No Assumptions Effect Size Average	PAND
Positive Verbalization ES	.69	-.93	.51	-.27	1.16	1.14	.61	45%
95% CI	.62 – .77	-.94 – -.91	.49 – .53	-.29 – -.26	1.12 – 1.21	1.12 – 1.16	.58 to .64	
Positive Verbalization PND	33%	0%	20%	0%	75%	44%		
Positive Nonverbal Behavior ES	-2.03	-.10	1.34	.41	2.31	-.19	.09	48%
95% CI	-2.14 – -1.92	-.21 – .00	1.27 – 1.40	.27 – .55	2.24 – 2.38	-.23 – -.15	.01 to .18	
Positive Nonverbal Behavior PND	0%	0%	80%	12%	100%	22%		

Note: ES = Effect Size CI = Confidence Interval

Table 13

Control Group Positive Social Interactions Classroom Observation Results:

Effect Sizes and Confidence Intervals Baseline to Treatment

	Participant 7	Participant 8	Participant 9	Participant 10	Participant 11	No Assumptions Effect Size Average	PAND
Positive Verbal	-1.42	--	.21	.09	-.18	-.37	35%
95% CI	-1.45 – -1.39	--	.19 – .23	.06 – .11	-.19 – -.17	-.45 to -.42	
Positive Verbal PND	0%	0%	20%	20%	20%		
Positive Nonverbal Behavior	-.64	--	-.98	-.43	-.61	-.92	25%
95% CI	-.70 – -.58	--	-1.09 – -.87	-.56 – -.29	-.68 – -.55	-.74 to -.61	
Positive Nonverbal Behavior PND	20%	0%	0%	10%	10%		

Note: ES = Effect Size CI = Confidence Interval

Table 14

Average Engagement in Negative Social Interactions During

Classroom Free-Play Observations

	Treatment Group			Control Group		
	Baseline	Treatment	Follow-Up	Baseline	Treatment	Follow-Up
Physical Aggression	2%	1%	1%	3%	1%	0%
Verbal Aggression	2%	1%	0%	1%	0%	0%
Defiant Behavior	1%	0%	0%	0%	0%	0%
Neutral Behavior	58%	57%	56%	48%	61%	54%

Note: percentage of 10-minute observation sessions

Table 15

Treatment Group Negative Social Interactions Classroom Setting Observation Results:

Effect Sizes and Confidence Intervals Baseline to Treatment

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	No Assumptions ES Averages	PAND
Verbal Aggression ES	-.84	-.23	-.70	-.81	.50	.78	-.38	30%
95% CI	-.86 – -.82	-.24 – -.21	-.71 – -.69	-.82 – -.81	.50 – .50	.77 - .79	-.36 to -.39	
Verbal Aggression PND	0%	0%	0%	0%	0%	0%		
Physical Aggression ES	-.82	-.71	.17	-1.74	-.57	-.44	-.81	40%
95% CI	-.82 – -.81	-.72 – -.71	.16 – .18	-1.76 – -1.73	-.59 – -.56	-.46 – -.43	-.80 to -.82	
Physical Aggression PND	0%	0%	0%	100%	0%	44%		
Defiant Behavior ES	--	--	.45	-.82	--	-.70	-.70	0%
95% CI	--	--	.44 – .45	-.83 – -.80	--	-.72 – -.68	-.69 to -.70	
Defiant Behavior PND	0%	0%	0%	0%	0%	0%		
Neutral Behavior ES	2.14	.32	-1.49	-.09	-4.09	-.21	-.15	30%
95% CI	2.06 - 2.24	.19 – .45	-1.55 – -1.43	-.24 – .06	-4.15 – -4.04	-.27	-.07 to -.24	
Neutral Behavior PND	0%	10%	70%	13%	100%	22%		

Note: ES = Effect Size CI = Confidence Interval

Table 16

Control Group Negative Social Interactions Classroom Setting Observation Results:

Effect Sizes and Confidence Intervals Baseline to Treatment

	Participant 7	Participant 8	Participant 9	Participant 10	Participant 11	No Assumptions ES Averages	PAND
Verbal Aggression	-.94	--	-.50	-.47	.47	-.51	70%
95% CI	-.96 – -.92	--	-.51 – -.50	-.48 – -.46	.47 – .47	-.50 to -.52	
PND	0%	0%	0%	0%	0%		
Physical Aggression	-1.17	--	-1.32	.54	-1.04	-.65	90%
95% CI	-1.19 – -1.15	--	-1.33 – -1.31	.52 – .55	-1.06 – -1.03	-.65 to -.66	
PND	60%	3%	8%	0%	0%		
Defiance	--	--	--	.69	--	.58	0%
95% CI	--	--	--	.69 – .70	--	.58 to .58	
PND	0%	0%	0%	0%	0%		
Neutral Behavior	2.04	--	1.04	.21	.89	1.16	0%
95% CI	1.99 – 2.10	--	.94 – 1.14	.09 – .34	.85 – .95	1.26 to 1.06	
PND	0%	0%	0%	11%	11%		

Note: ES = Effect Size CI = Confidence Interval

Table 17

Pre- and Posttest PKBS-2 Mean Parent and Teacher

Ratings of Treatment Group Problem Behaviors

PKBS Scale	Parent Pretest	Parent Posttest	Teacher 1 Pretest	Teacher 1 Posttest	Teacher 2 Pretest	Teacher 2 Posttest
Problem Behavior	133	99	106	113	109	118
Externalizing Problems	133	111	112	113	120	121
Internalizing Problems	127	101	107	111	110	113

Note Means Standard Scores (Mean = 100, Standard Deviation = 15)

Table 18

Pre- and Posttest PKBS-2 Mean Parent and Teacher

Ratings of Control Group Problem Behaviors

PKBS Scale	Parent Pretest	Parent Posttest	Teacher 1 Pretest	Teacher 1 Posttest	Teacher 2 Pretest	Teacher 2 Posttest
Problem Behavior	111	130	114	108	106	106
Externalizing Problems	132	135	104	106	105	104
Internalizing Problems	109	119	106	108	105	106

Note Means Standard Scores (Mean = 100, Standard Deviation = 15)

Table 19

Pre- and Posttest Teacher Ratings on the C-TRF Externalizing Scale

C-TRF Externalizing Scale	Pretest	Classification	Posttest	Classification
Treatment Group	64	Clinical	62.5	Borderline
Control Group	60	Normal	58	Normal

Note: C-TRF scores <60 = Average, 60-63 = Borderline, >64 = Clinical

Table 20

Pre- and Posttest Treatment Group PKBS-2 Parent and Teacher Ratings

PKBS-2	Parent Pretest	Parent Posttest	Mean Difference	Teacher 1 Pretest	Teacher 1 Posttest	Mean Difference	Teacher 2 Pretest	Teacher 2 Posttest	Mean Difference
Social Skills Scale Pretest	73	86	13	89	87	-2	81	91	10
Social Cooperation	71	84	13	88	88	0	84	86	2
Social Interaction	82	96	14	93	89	4	90	94	4
Social Independence	76	88	12	91	90	-1	93	97	4

Note: Means Standard Scores (Mean = 100, Standard Deviation = 15)

Table 21

Pre- and Posttest Control Group Parent and Teacher PKBS-2 Ratings

PKBS	Parent Pretest	Parent Posttest	Mean Difference	Teacher 1 Pretest	Teacher 1 Posttest	Mean Difference	Teacher 2 Pretest	Teacher 2 Posttest	Mean Difference
Social Skills Scale Pretest	77	86	9	85	88	3	103	102	-1
Social Cooperation	69	78	9	90	94	4	102	96	-6
Social Interaction	88	98	10	97	94	-3	103	102	-1
Social Independence	83	92	9	90	89		102	107	5

Note: Means Standard Scores (Mean = 100, Standard Deviation = 15)

Table 22

Treatment Group Average PreBERS Pre- and Posttest Parent and Teacher Ratings

Scale	Teacher 1	Teacher 2
Emotional Regulation Pretest	8.6	7.1
Emotional Regulation Posttest	9.5	8.1
Social Competence Pretest	8	8.8
Social Competence Posttest	8.5	8

Scaled Scores (Mean = 10, SD = 3)

Table 23

Control Group Average PreBERS Pre- and Posttest Parent and Teacher Ratings

Scale	Teacher 1	Teacher 2
Emotional Regulation Pretest	9.6	9.8
Emotional Regulation Posttest	9.6	10.8
Social Competence Pretest	8.8	9.8
Social Competence Posttest	9.2	10.4

Scaled Scores (Mean = 10, SD = 3)

Table 24

BIRS Item Mean Ratings by Parents and Teachers

Item	Parent Mean	Teacher Mean	Total Mean
1. Strong Start Pre-K would be an acceptable intervention to improve social skills	5.33	4.58	4.96
2. Most parents would find Strong Start Pre-K appropriate for social skill intervention	5.33	4.83	5.08
3. Strong Start Pre-K should prove effective in targeting social skills	5.17	4.83	5.00
4. I would suggest the use of Strong Start Pre-K to other parents/teachers	5.17	4.50	4.83
5. The child's behavior is severe enough to warrant the use of this intervention	5.33	4.42	4.88
6. Most teachers would find this intervention suitable for the behavior described	5.00	4.50	4.75
7. I would be willing to use Strong Start Pre-K in my classroom	5.33	4.67	5.00
8. Strong Start Pre-K would not result in negative side-effects for the child	5.00	4.17	4.58
9. Strong Start Pre-K would be an appropriate intervention for a variety of children	5.00	4.67	4.83
10. Strong Start Pre-K is consistent with other social skills programs I have used	5.00	4.58	4.79
11. Strong Start Pre-K is a fair way to teach social skills	5.33	4.92	5.13
12. Strong Start Pre-K is reasonable for difficulties that arise from social skills	5.00	4.75	4.88
13. I like the procedures used by Strong Start Pre-K	5.50	4.67	5.08
14. Strong Start Pre-K is a good way to handle social skills	5.33	4.58	4.96
15. Overall, Strong Start Pre-K was beneficial for the child	5.17	3.83	4.50
16. Strong Start Pre-K would quickly improve the child's behavior	4.50	3.25	3.88
17. Strong Start Pre-K would produce lasting improvement in the child's behavior	4.83	4.00	4.42
18. Strong Start Pre-K would improve a child's behavior to the point that it would not noticeably deviate from other peer's behavior.	4.50	3.33	3.92
19. Soon after using Strong Start Pre-K, there was a noticeable positive change in social skills	5.00	3.17	4.08
20. The child's behavior will remain at an improved level even after Strong Start Pre-K is discontinued	4.50	3.67	4.08
21. Using Strong Start Pre-K should not only improve the child's behavior in the classroom, but also in other settings (e.g. at home, other classrooms)	5.00	4.67	4.83
22. When comparing a participant with a non-participant of Strong Start Pre-K, the participant's and peer's behavior would be less alike after using Strong Start Pre-K	4.67	3.92	4.29
23. Strong Start Pre-K should produce enough improvement in social skills so the behavior is no longer a problem	4.50	3.67	4.08
24. Other behaviors related to social skills are likely to be improved by Strong Start Pre-K	5.17	3.92	4.54

Note: Scores range from 1= strongly agree to 5= strongly disagree

Table 25

Child Consumer Satisfaction Survey Mean Scores

Item	P1	P2	P3	P4	P5	P6	Group Mean
1. I enjoyed participating in the *Strong Start* program	5	5	5	4	5	5	4.8
2. The *Strong Start* program taught me how to make friends	4	5	5	5	2	5	4.3
3. I liked the books that were read to me during the *Strong Start* group	3	5	5	5	4	3	4.2
4. I enjoyed the activities in the *Strong Start* group	5	4	5	4	5	5	4.7
5. I would like the *Strong Start* program to teach me more	5	5	5	4	4	5	4.7
Total Average Score	4.4	4.8	5	4.4	4	4.6	4.54

Note scores range from 1 = strongly disagree to 5 = strongly agree

Table 26

Treatment Setting Free-Play Time Observation Results: Baseline to Follow-up

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	No Assumptions ES Average
Positive Verbalization ES	.77	1.91	-1.41	--	.99	.50	.65
95% Confidence Interval	.71 to .82	1.89 to 1.94	-1.43 to -1.38	--	.95 to 1.04	.45 to .55	.61 to .69
Positive Nonverbal Behavior ES	1.87	.58	.76	--	1.72	-.55	.94
95% Confidence Interval	1.80 to 1.92	.46 to .71	.65 to .87	--	1.66 to 1.79	-.60 to -.50	.86 to 1.02

Table 27

Treatment Group Classroom Observation Results: Effect Sizes and Confidence Intervals Baseline to Follow-up

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	No Assumptions ES Average
Positive Verbalization ES	.81	-.39	-.33	--	.78	.84	.50
95% CI	.72 to .90	-.43 to -.36	-.34 to -.31	--	.75 to .81	.82 to .86	.46 to .54
Positive Nonverbal Behavior ES	-1.19	-.78	2.75	--	3.14	-1.20	.12
95% CI	-1.37 to -1.01	-.96 to -.61	2.63 to 2.87	--	3.08 to 3.21	-1.25 to -1.16	.01 to .23

Table 28

Control Group Classroom Observation Results: Effect Sizes and Confidence Intervals Baseline to Follow-up

	Participant 7	Participant 8	Participant 9	Participant 10	Participant 11	No Assumptions ES Average
Positive Verbalization ES	-1.21	--	.46	--	.15	-.31
95% CI	-1.26 to -1.16		.42 to .49	--	.11 to .18	-.36 to -.26
Positive Nonverbal Behavior ES	.47	--	-.09	--	.18	.18
95% CI	.33 to .60		-.24 to .06	--	.09 to .27	.04 to .33

Table 29

Treatment Setting Free-Play Time Observation Results: Baseline to Follow-up

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	No Assumptions ES Average
Physical Aggression ES	-.57	-.58	-.75	--	-3.01	-1.07	-1.16
95% CI	-.59 to -.55	-.61 to -.54	-.77 to -.73	--	-.3.04 to -2.99	-1.08 to -1.06	-1.13 to -1.18
Verbal Aggression ES	-.81	-.58	-1.41	--	-1.32	.13	-.96
95% CI	-.83 to -.79	-.58 to -.57	-1.42 to -1.41	--	-1.34 to -1.31	.12 to .14	-.95 to -.97
Defiant Behavior ES	.47	--	--	--	--	.50	.49
95% CI	.47 to .47	--	--	--	--	.50 to .50	.49
Neutral Behavior ES	-2.11	-.72	-.29	--	-.52	.18	-.70
95% CI	-2.18 to -2.04	-.85 to -.60	-.41 to -.18	--	-.61 to -.43	.12 to .23	-.61 to -.79

Note: ES = Effect Size CI = Confidence Interval

Table 30

Treatment Group Classroom Observation Results: Effect Sizes and Confidence Intervals Baseline to Follow-up

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5	Participant 6	No Assumptions ES Average
Verbal Aggression ES	-1.07	-1.31	-.82	--	--	0	-.95
95% CI	-1.04 to 1.10 -	-1.30 to -1.33	-.80 to -.83	--	--	-0.01 to 0.01	-.94 to -.96
Physical Aggression ES	.58	-1.23	-.82	--	-1.00	-1.23	-.81
95% CI	.57 to .59	-1.23 to -1.24	-.81 to -.82	--	-.98 to -1.02	-1.23 to -1.24	-.80 to -.82
Defiant Behavior ES	--	--	--	--	--	-.82	-.82
95% CI	--	--	--	--	--	-.79 to -.84	-.81 to -.82
Neutral Behavior ES	.99	.51	-.76	--	-3.40	1.24	-.05
95% CI	.88 to 1.10	.26 to .75	-.51 to -1.01	--	-3.35 to -3.46	1.19 to 1.30	.08 to -.19

Note: ES = Effect Size CI = Confidence Interval

Table 31

Control Group Classroom Observation Results: Effect Sizes and Confidence Intervals Baseline to Follow-up

	Participant 7	Participant 8	Participant 9	Participant 10	Participant 11	No Assumptions Average ES
Verbal Aggression ES	-1.00	--	-.82	--	.82	-.80
95% CI	-.97 to -1.03		-.81 to -.82	--	.82 to .81	-.78 to -.81
Physical Aggression ES	-1.67	--	--	--	-1.31	-2.16
95% CI	-1.64 to -1.69		--	--	-1.30 to -1.33	-2.15 to -2.18
Defiant Behavior ES	--	--	--	--	--	--
95% CI	--		--	--	--	
Neutral Behavior ES	.45	--	.22	--	-.12	.26
95% CI	.62 to .27		.35 to .08	--	-.03 to -.21	.41 to .11

Note: ES = Effect Size CI = Confidence Interval

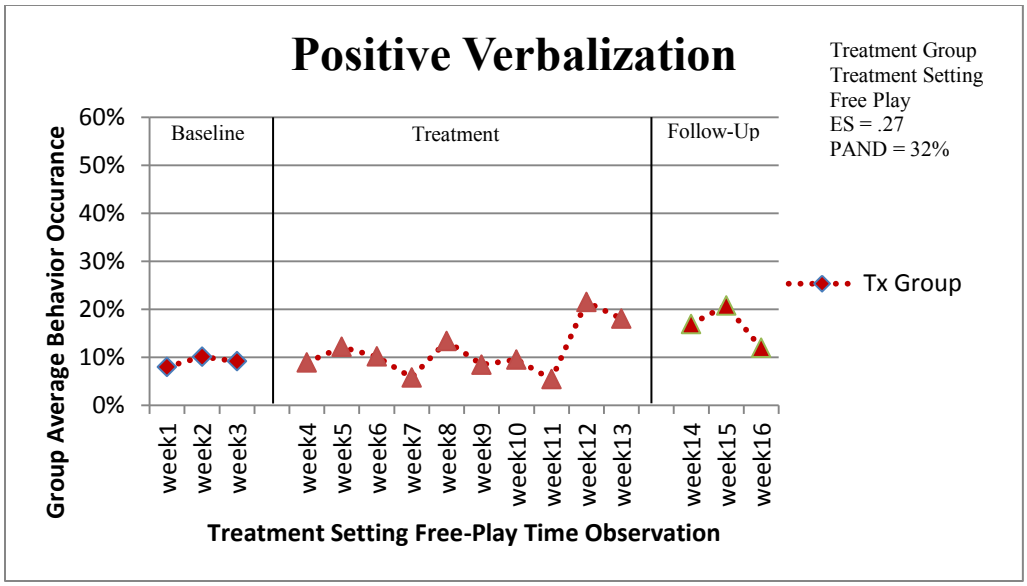


Figure 1: Treatment Group Positive Verbalization

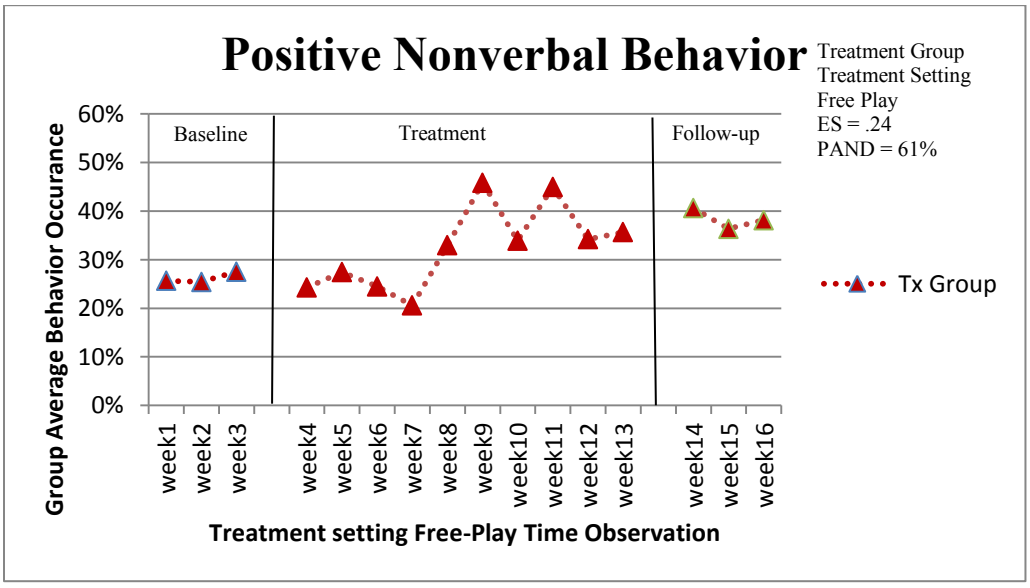


Figure 2: Treatment Group Positive Nonverbal Behavior

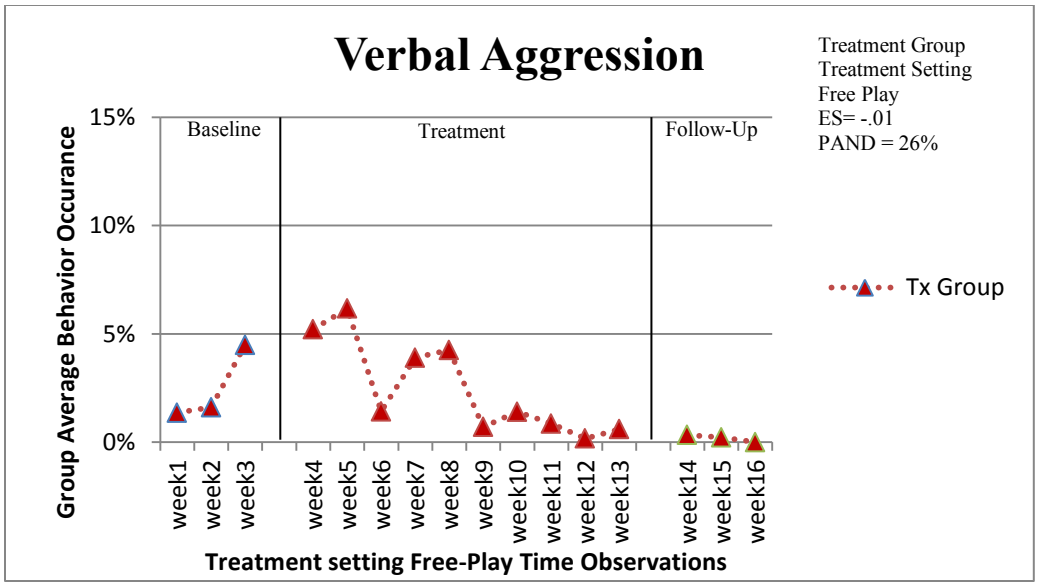


Figure 3: Treatment Group Verbal Aggression

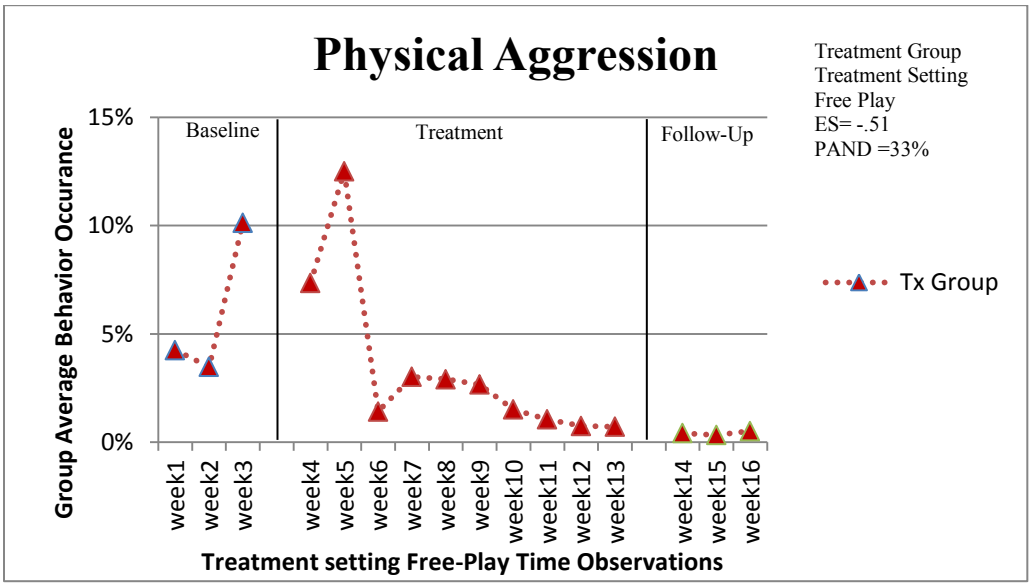


Figure 4: Treatment Group Physical Aggression

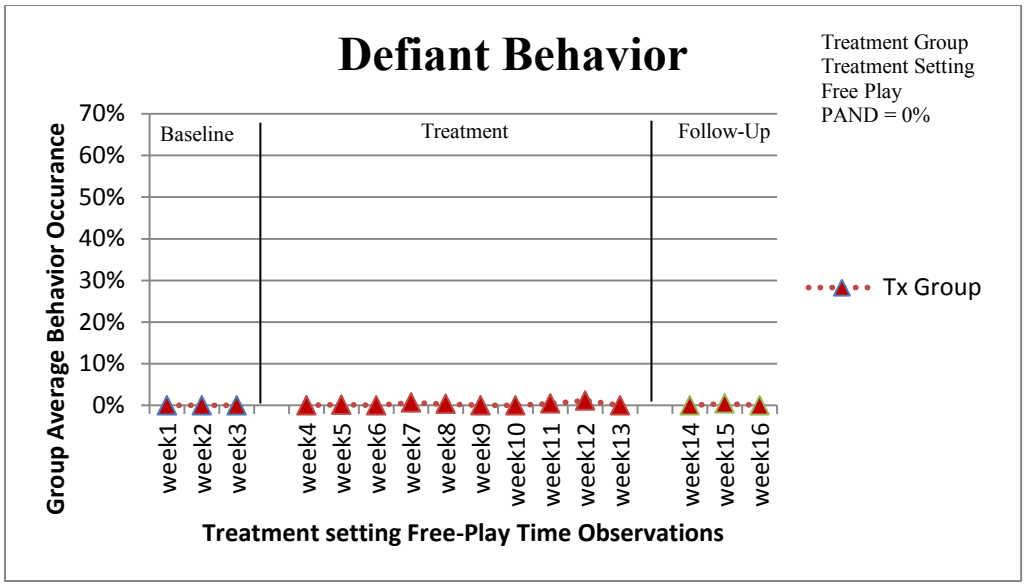


Figure 5: Treatment Group Defiant Behavior

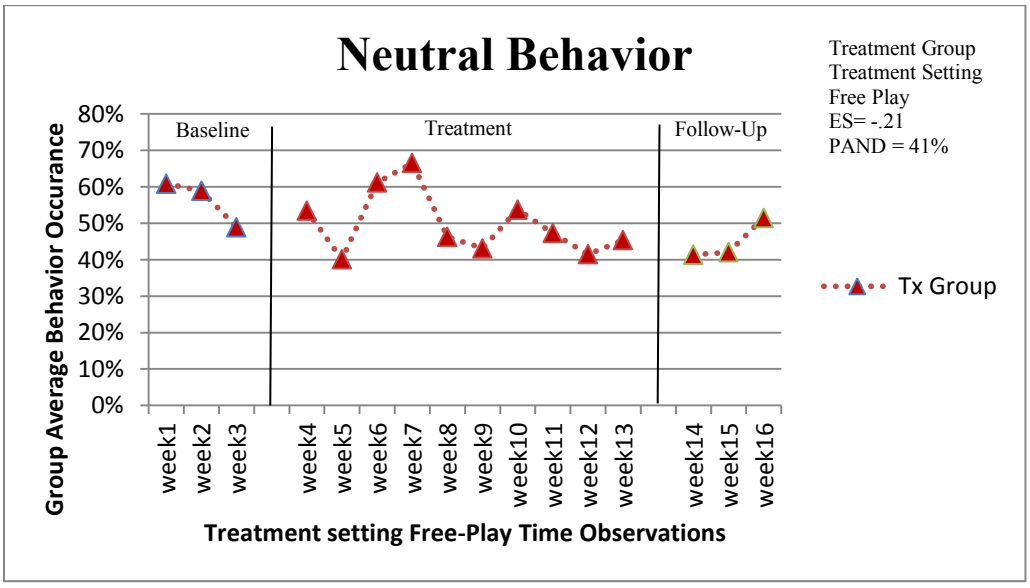


Figure 6: Treatment Group Neutral Behavior

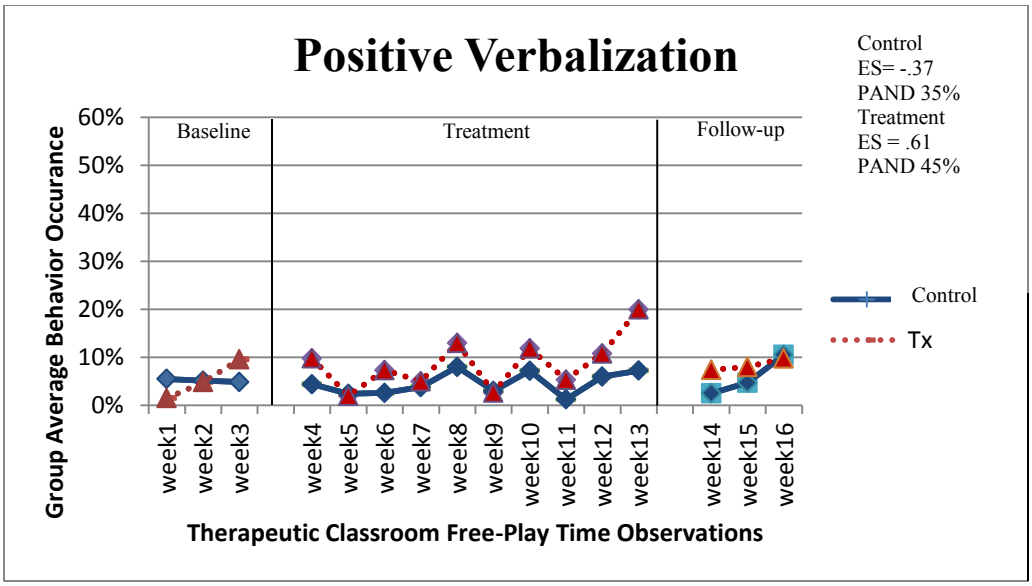


Figure 7: Treatment and Control Group Positive Verbalization

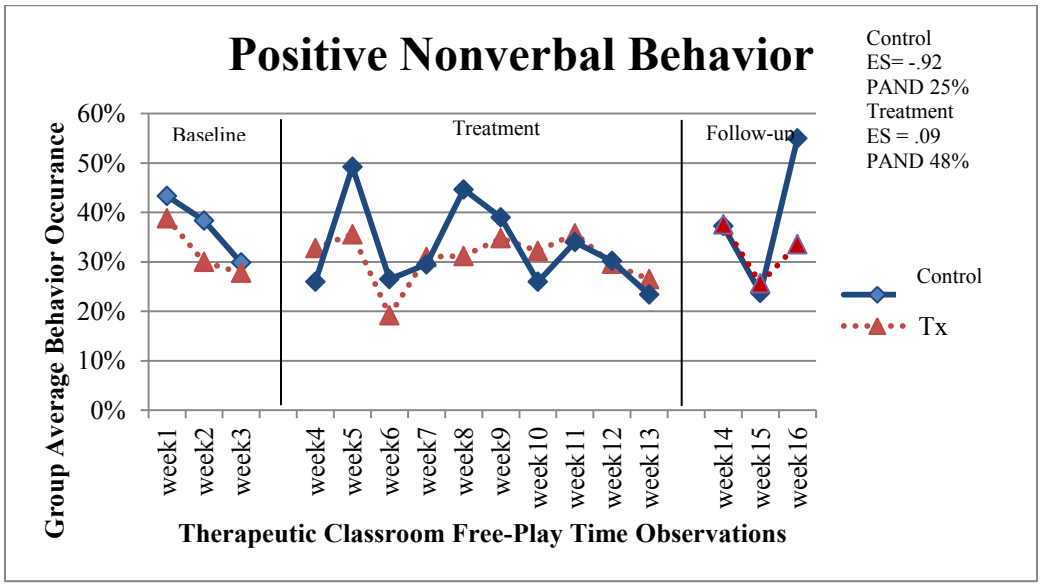


Figure 8: Treatment and Control Group Positive Nonverbal Behavior

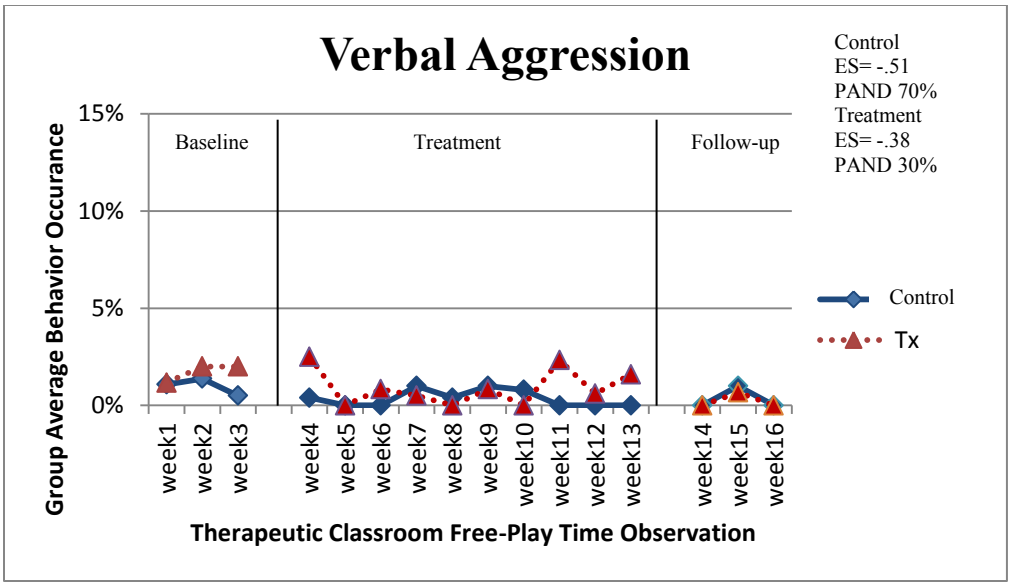


Figure 9: Treatment and Control Group Verbal Aggression

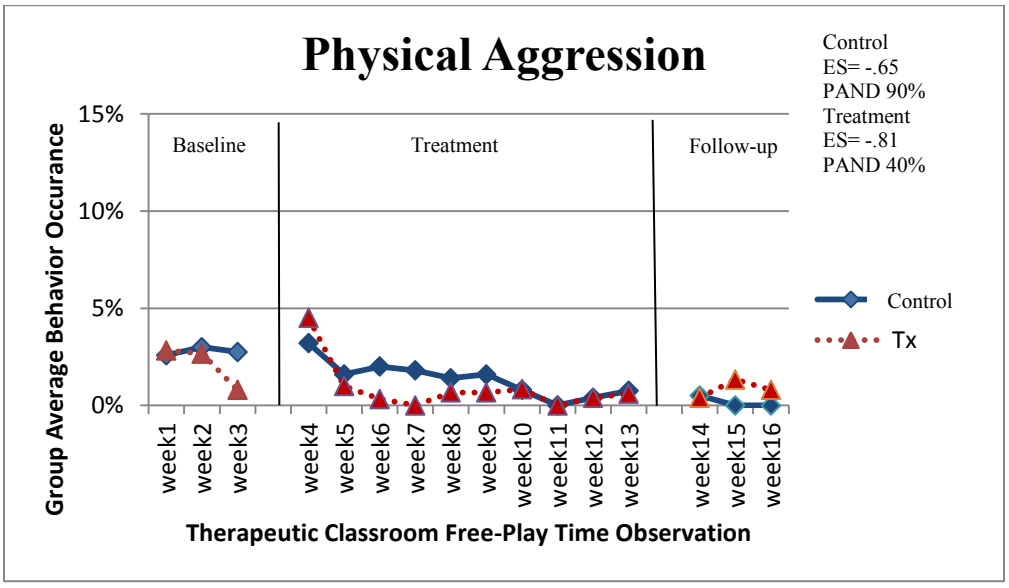


Figure 10: Treatment and Control Group Physical Aggression

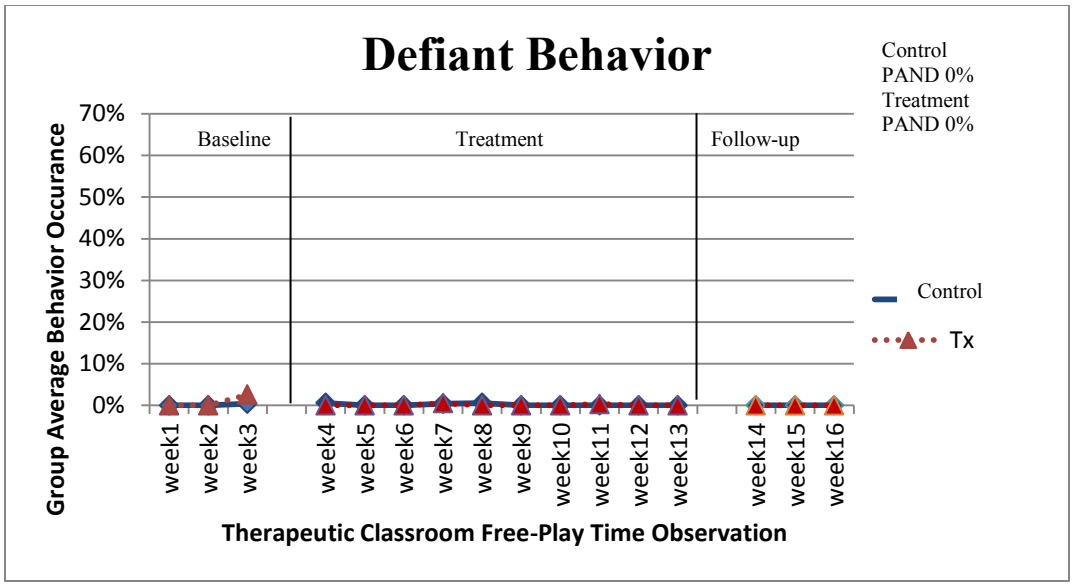


Figure 11: Treatment and Control Group Defiant Behavior

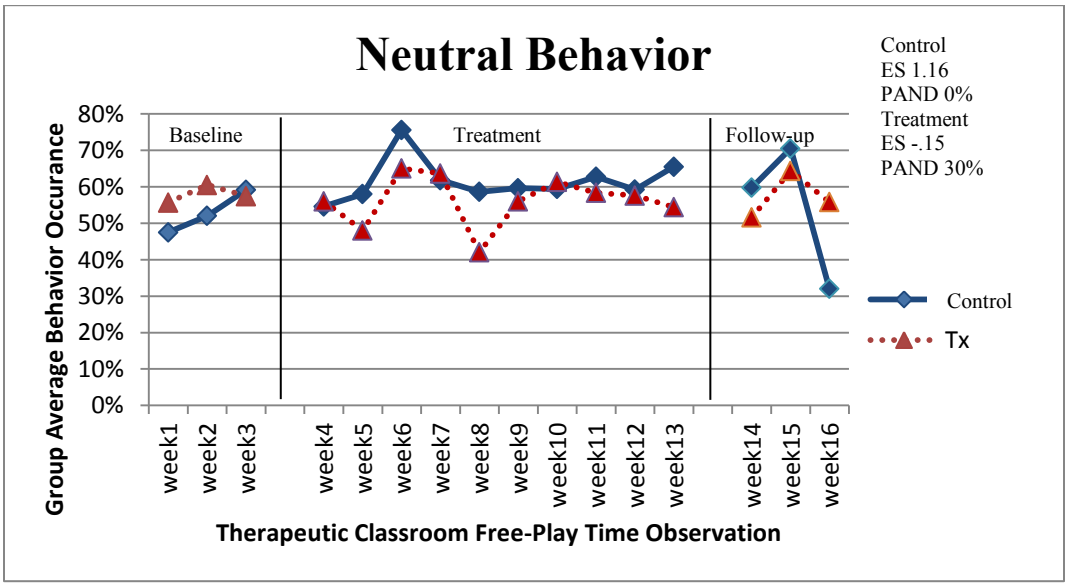


Figure 12: Treatment and Control Group Neutral Behavior

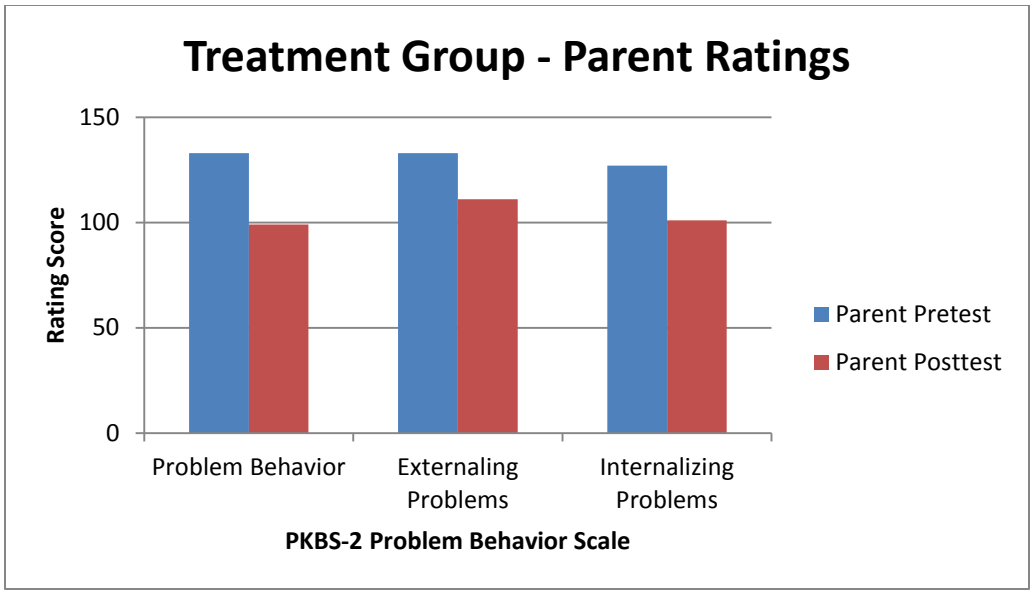


Figure 13: Average PKBS-2 Parent Treatment Group Problem Behavior Ratings

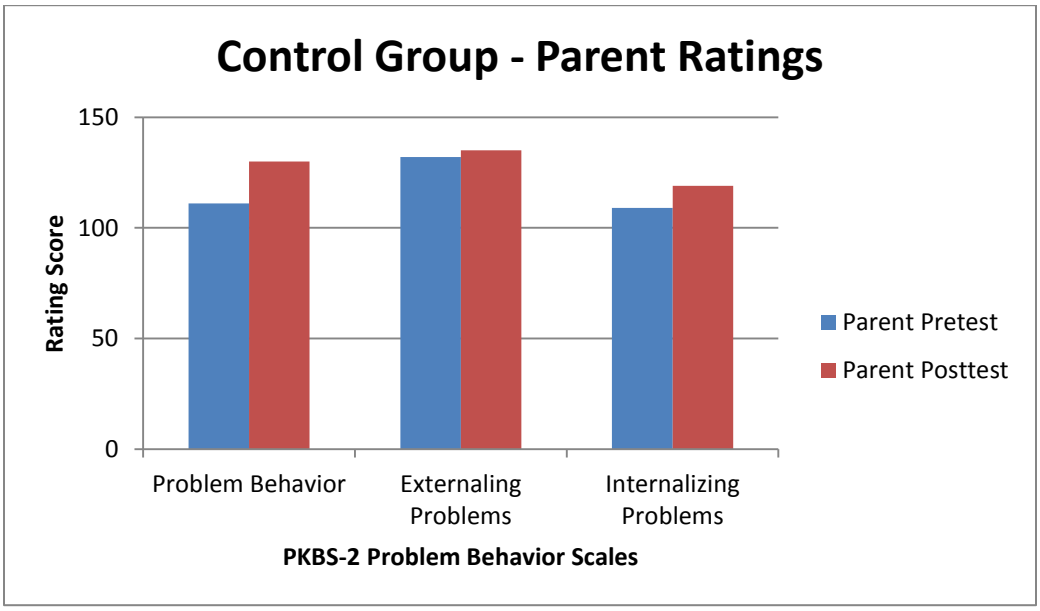


Figure 14: Average PKBS-2 Parent Control Group Problem Behavior Ratings

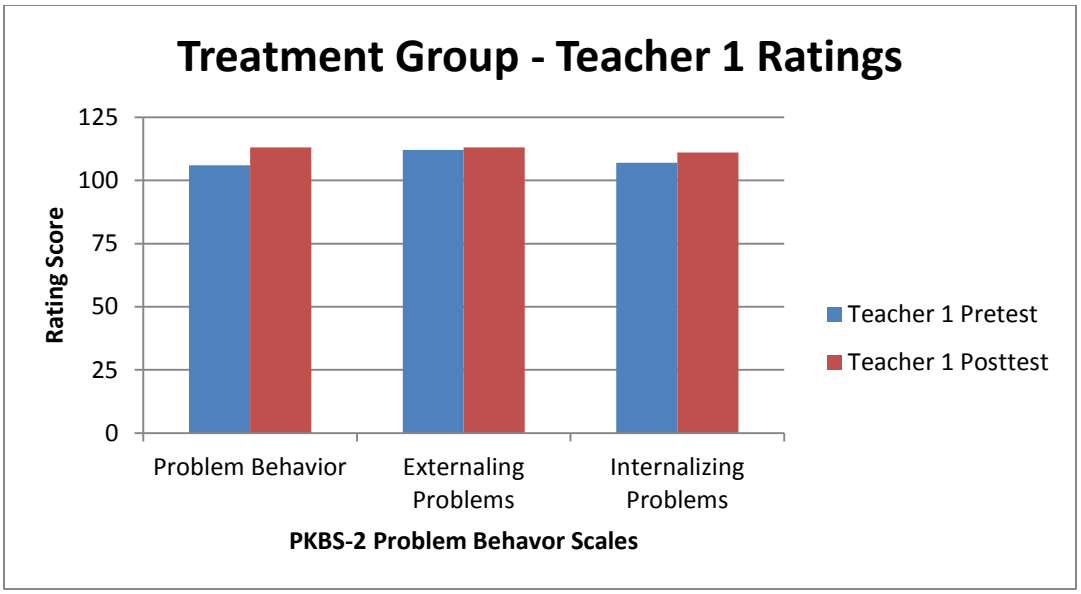


Figure 15: Average PKBS-2 Teacher 1 Problem Behavior Ratings

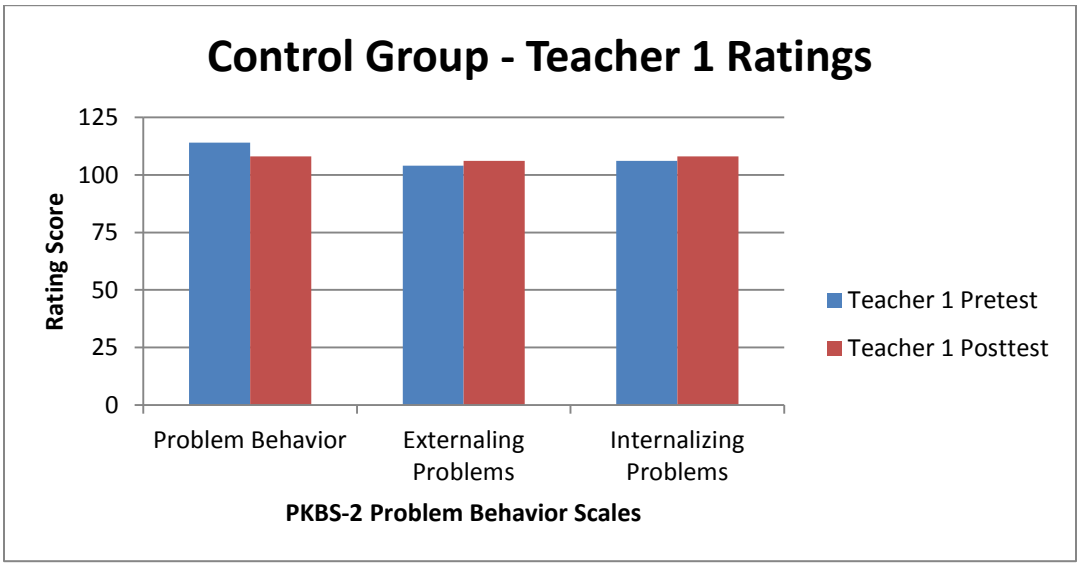


Figure 16: Average PKBS-2 Teacher 1 Problem Behavior Ratings

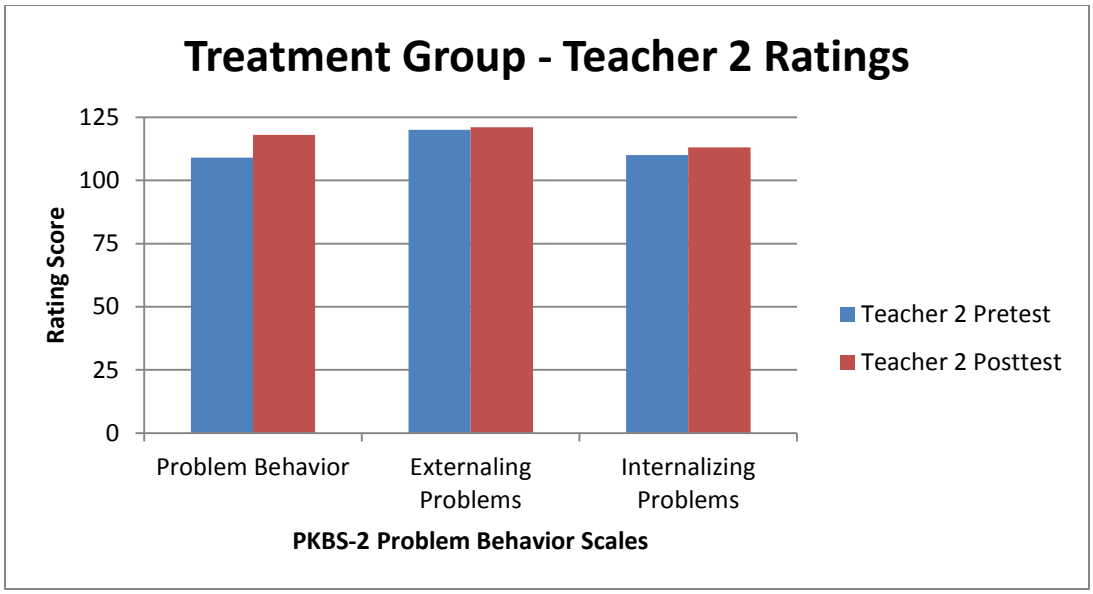


Figure 17: Average PKBS-2 Teacher 2 Problem Behavior Ratings

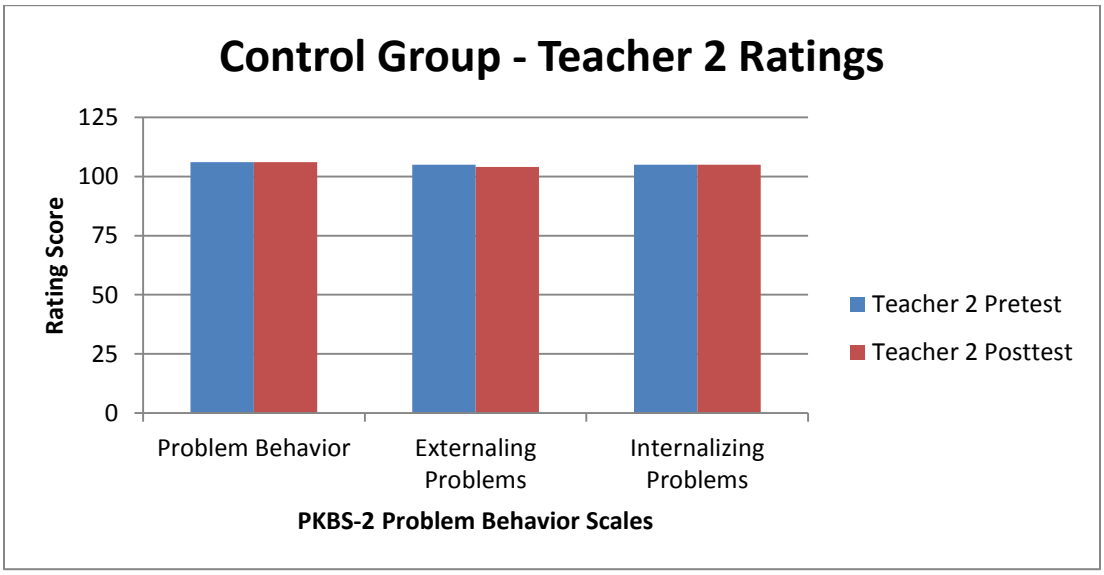


Figure 18: Average PKBS-2 Teacher 2 Problem Behavior Ratings

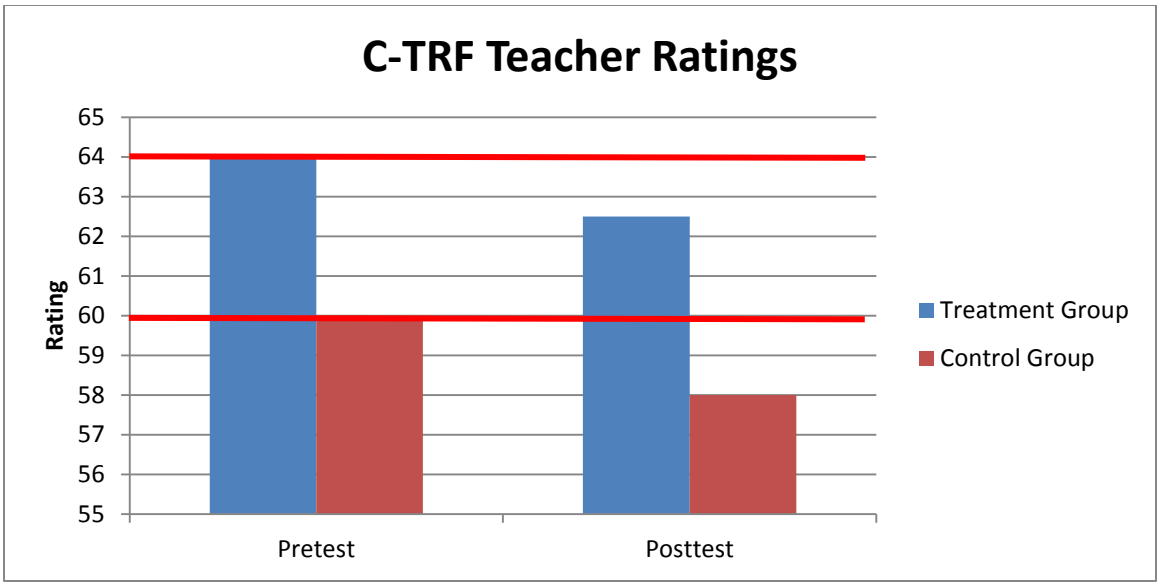


Figure 19: Average Pre- And Posttest Teacher Rating Scores on the C-TRF

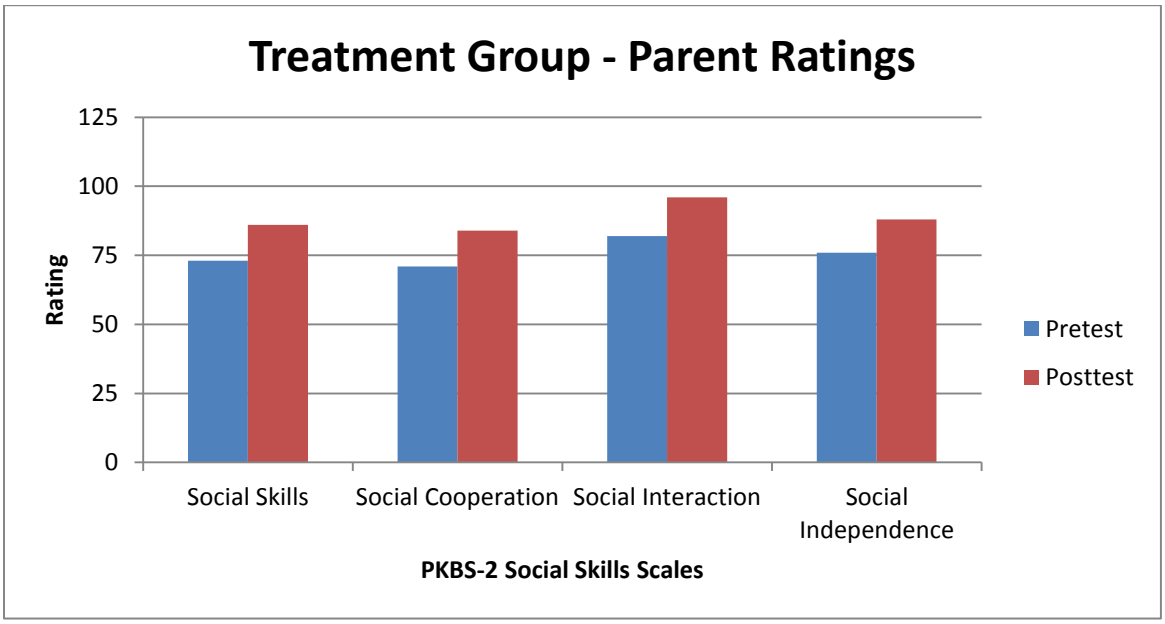


Figure 20: Average PKBS-2 Parent Treatment Group Social Skills Ratings

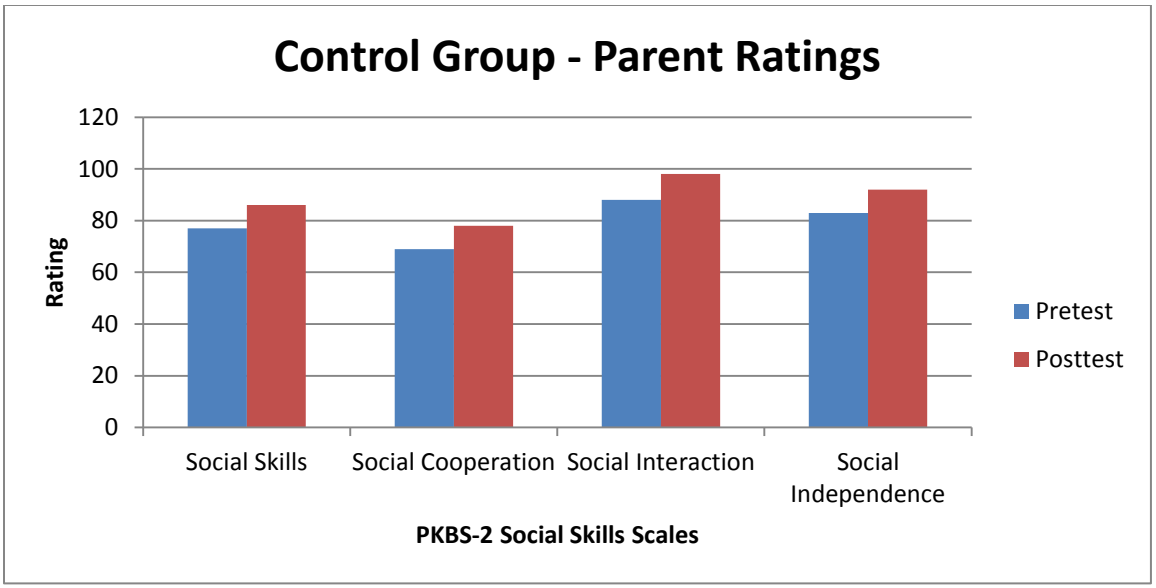


Figure 21: Average PKBS-2 Parent Control Group Social Skills Ratings

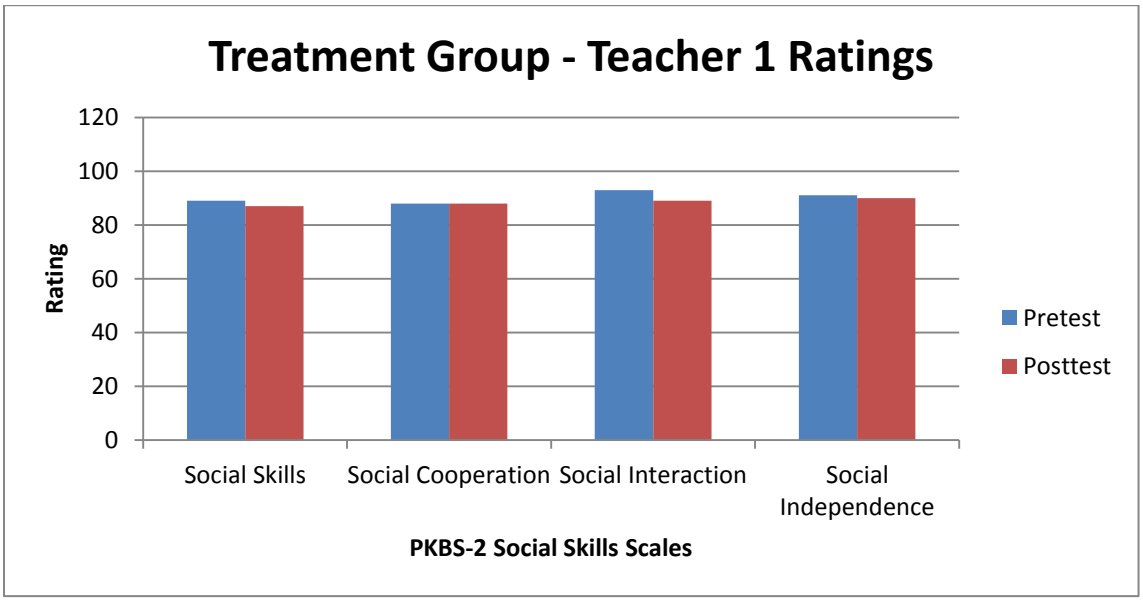


Figure 22: Average PKSB-2 Teacher 1 Treatment Group Social Skills Ratings

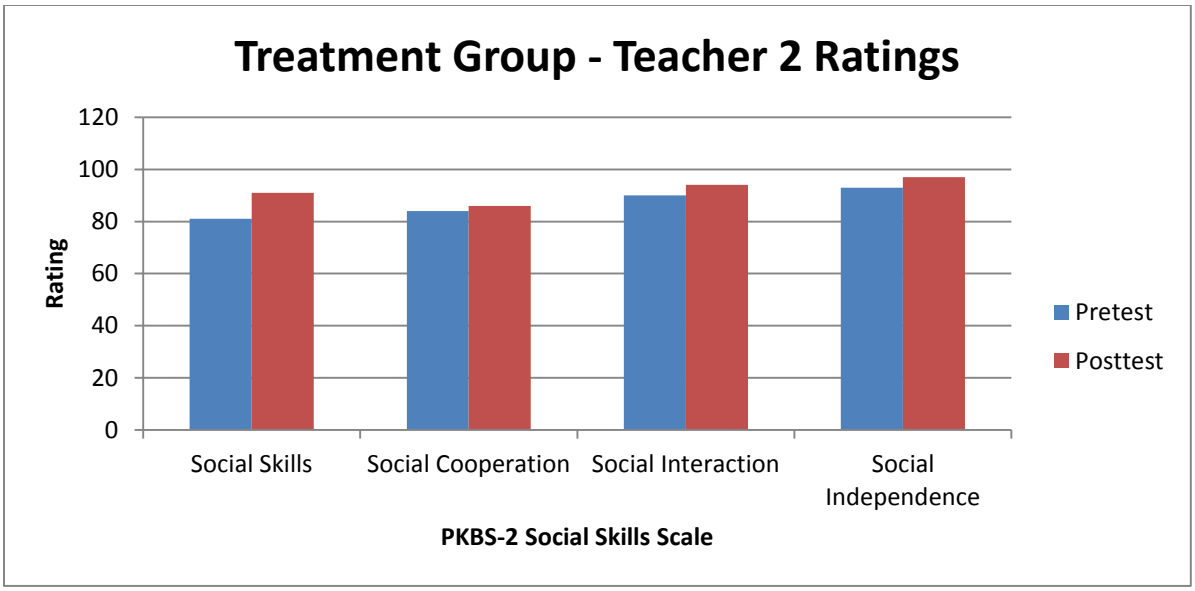


Figure 23: Average PKBS-2 Teacher 2 Treatment Group Social Skills Ratings

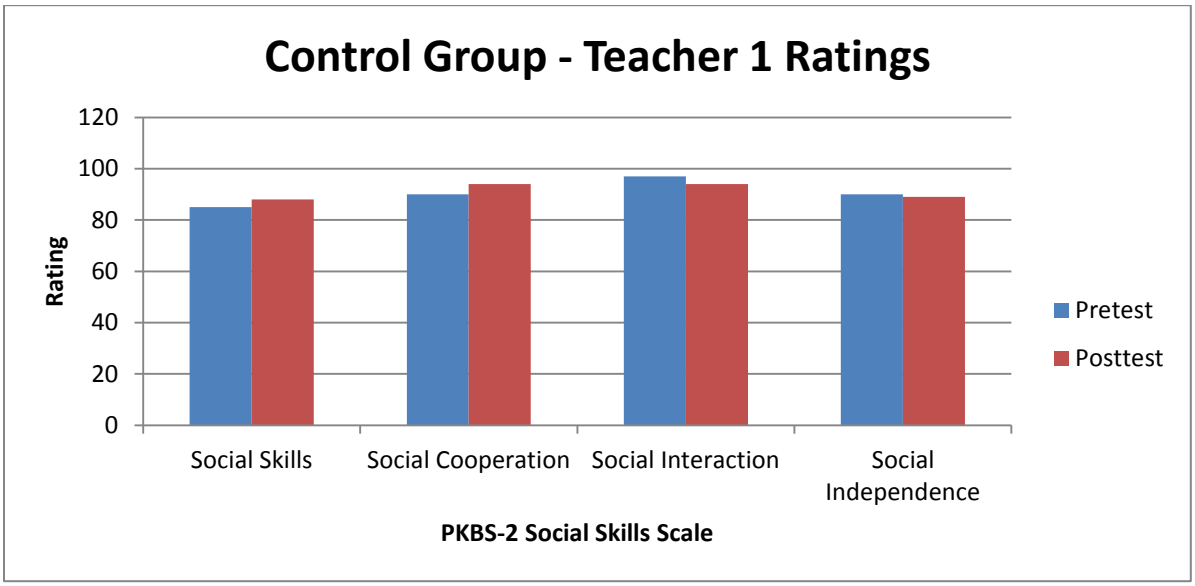


Figure 24: Average PKBS-2 Teacher 1 Control Group Social Skills Ratings

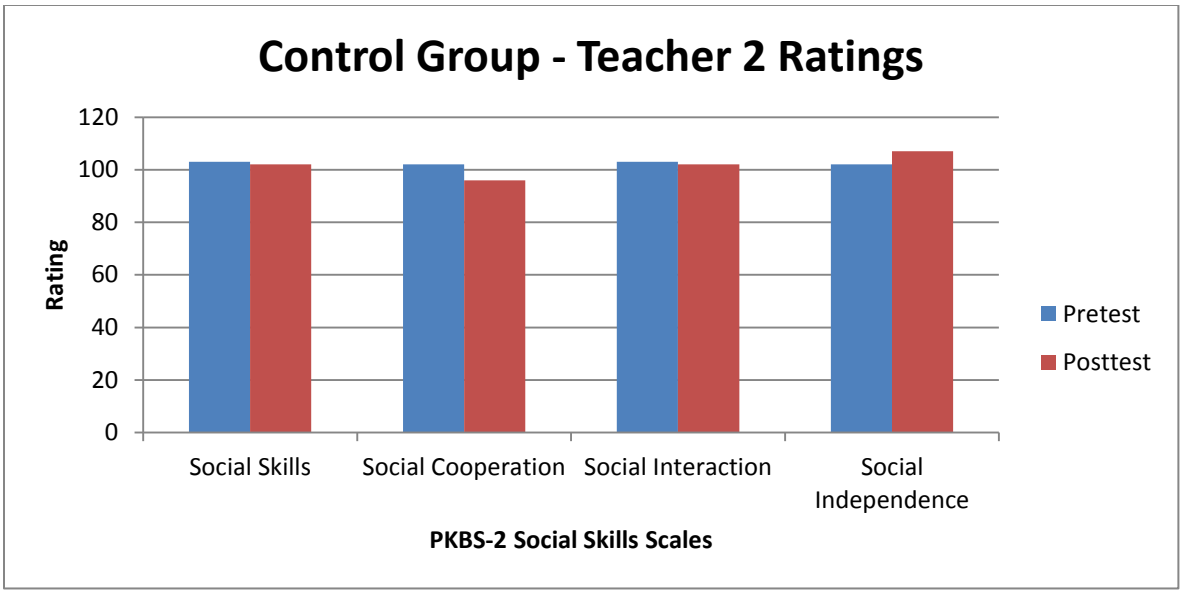


Figure 25: Average PKBS-2 Teacher 2 Control Group Social Skills Ratings

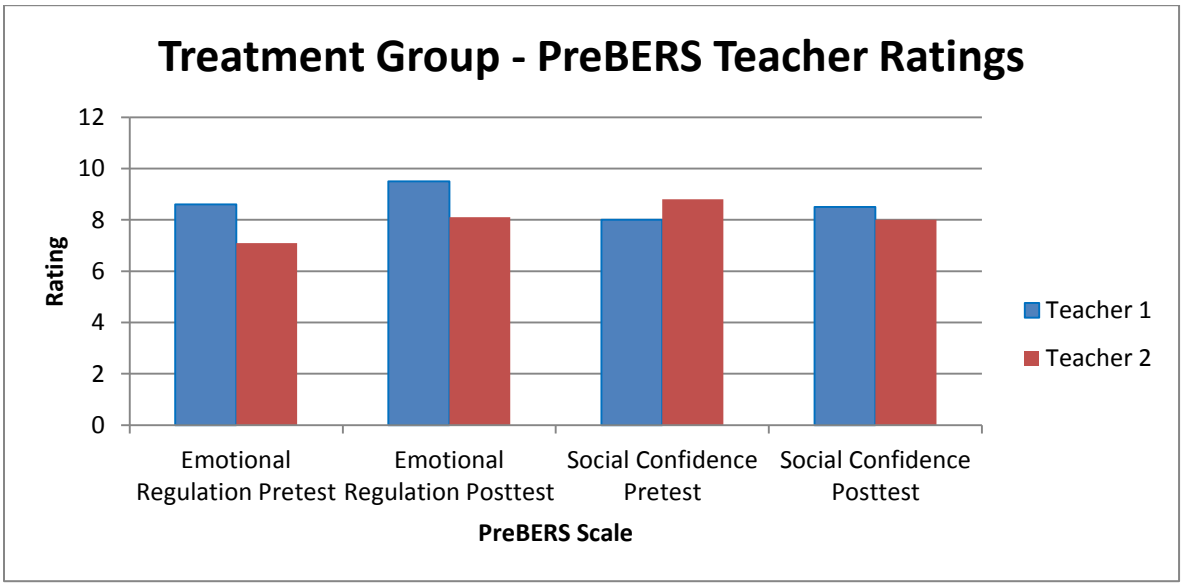


Figure 26: Average Treatment Group Teacher Pre- and Posttest PreBERS Ratings

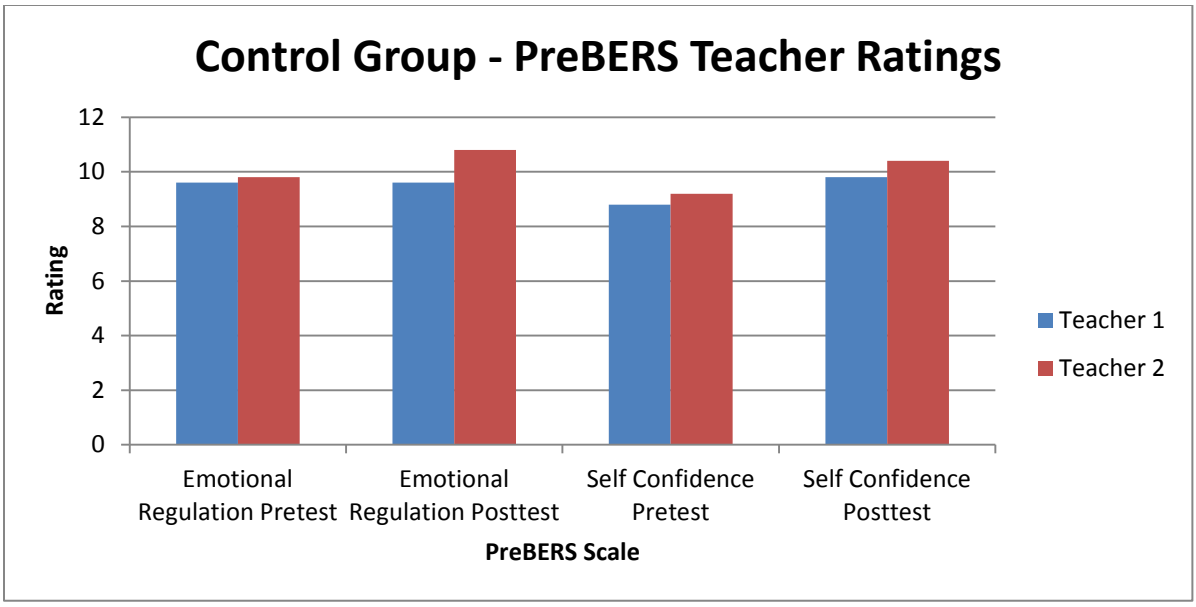


Figure 27: Average Control Group Teacher Pre- and Posttest PreBERS Ratings

CHAPTER IV

DISCUSSION

Overall the results of the study showed that the *Strong Start Pre-K* program did not substantially add to the regular therapeutic program in increasing positive peer interactions of the preschool children over the course of the treatment program. However, there was a trend shown for improved positive nonverbal social interactions for the treatment group in the treatment setting. Unlike the treatment group, the control group of children who did not receive the *Strong Start Pre*-K program did not show a trend for improved positive social interactions. Individual participant data showed that increases in positive interactions were maintained at follow-up. As for the effectiveness of the *Strong Start Pre-K* curriculum to decrease negative behaviors, there is no evidence that the program was responsible for any decrease despite the fact the children in the treatment group had fewer aggressive verbalizations and other physical aggressions over the course of the study; however, so did participants of the control group, and both groups maintained this decrease at the time of follow-up. This suggests that the regular therapy at the therapeutic preschool was responsible for the reduction of negative behaviors in participants. Evidence of skill generalization for treatment group participants was not observed to the extent skills were exhibited in the treatment setting during observations in

the regular preschool classroom. In other words, the effect size was larger for behavior change in the treatment setting than the classroom.

The current study employed several types of data analysis: that is, visual analysis, PND, PAND, and the Busk and Serlin (1994) no assumption effect size. Depending on the method used, results showed mixed results for the magnitude of treatment effect. Examination of data by visual analysis showed less of a treatment effect whereas effect size calculations showed greater behavior change, at least for positive verbalizations, positive nonverbal behavior, and physical aggression for the treatment group participants when they were observed immediately following program implementation in the treatment setting. Although effect size data showed what appeared to be generalization of treatment effects for reducing physical aggression in the regular therapeutic classroom, this effect was shown for both the treatment and control group participants. The treatment group maintained a moderate effect size increase in their demonstration of positive nonverbal behavior during observations in the treatment setting; however, classroom observations of the treatment and the control groups showed a small effect size decrease in their positive nonverbal behaviors pre- to posttreatment.

How Results Correspond to Previous Research

The current study is the first to utilize the *Strong Start Pre-K* portion of the *Strong Kids* programing with a population who is currently receiving therapy for social-emotional problems in a day treatment type of program. It is also the first to collect data on the program's effectiveness using direct observational measures of behavior change as researchers have called for (Caldarella et al., 2009; Gunter et al., 2012; Marchant et al.,

2010; Whitcomb, 2009). Prior studies have relied solely on behavior checklist and rating scales to evaluate the *Strong Start Pre-K* program's effectiveness (e.g., Gunter et. al., 2012), whereas the current study used both indirect and direct measures of treatment outcomes for the examination of the *Strong Start Pre-K* program. The current study also addressed the suggestion by Whitcomb (2009) to examine the reduction of problem behaviors for children receiving simultaneous interventions to determine the contributions of the *Strong Start Pre-K* program. The limitation noted by Isava (2006) of teachers administering *Strong Start* lessons and also reporting on changes in student behavior was addressed by the current study in that multiple coders including the PI evaluated behavior of participants via direct behavioral observations. Additionally, teachers completing behavior rating scales in the current study were not involved in the administration of the *Strong Start* curriculum.

Similar to previous research examining *Strong Kids* programing, the current study yielded the strongest outcomes for increases in positive interactions with peers (Harlacher 2008; Marchant et al., 2010; Whitcomb, 2009;), and in a population at risk for adverse peer interactions (Caldarella et al., 2009). Children exhibiting the most aversive peer interactions during baseline demonstrated the greatest decreases in aggressive types of behavior and increases in positive social engagements. Effect size outcomes of the current study are similar to those found by Nakayama (2008), with treatment group participants demonstrating moderate effect size increases in positive nonverbal behaviors and small effect sizes for reduction in problematic social-emotional problems. In the treatment setting of the current study, observations of the treatment group yielded similar effect sizes for positive nonverbal behavior to the effect sizes reported by Harlacher and

Merrell (2010) showing large increases positive nonverbal behavior of *Strong Start* participants.

The findings of the current study also align with the results of Whitcomb (2009) which reported decreases in internalizing symptoms for participants of the program. Although not a focus of the current study, parent ratings on the Internalizing Symptoms subscale of the PKBS-2 showed decreases in scores for internalizing behavior; however, this endorsement was not supported by teacher ratings. Also similar to Whitcomb (2009), effects of the *Strong Start Pre-k* program were found to decrease problem behavior of child exhibiting behavior difficulties prior to program participation; however, effect sizes for this change were small for the group. Whitcomb noted although the effect size may be small, the effect may still be meaningful in terms of the reduction of severe behaviors. Even marginal reductions in problematic behaviors can have a substantial impact on students' academic and social success at school (Whitcomb, 2009). Although aggressive verbalization and other aggressive behaviors were relatively low in frequency during the baseline, the occurrences of those behaviors were high intensity (e.g., slapping peers repeatedly in the face or screaming in the face of peers and ripping toys from their hands). Behaviors such as these would qualify for office disciplinary referrals in many public schools, highlighting the importance of this minimal yet meaningful reduction in behavior.

Meta-analytic findings have shown participants of SEL programing compared to controls demonstrated increased social-emotional skills and academic performance (Durlak, Weissberg, Dymnicki, Taylor, & Schellinger, 2011). This provides further support for the possibility of a buffering or preventative effect for children who

participant in *Strong Kid* programing (Harlacher, 2008), which may explain the outcomes in the current study for the control group showing a decrease in positive nonverbal behaviors while *Strong Kid* participants increased in skill, albeit slightly. Castro-Olivo (2007) found decreases in acculturation stress for participants participating the *Strong Teens* programing, which further suggest that *Strong Kids* programing may serve to buffer against, or prevent the loss of skill rather than instill large gains. Although it is optimal to observe large behavioral changes in participants of the program, the program may provide participants with methods of handling stressful situations more so than children who do not receive programing (Castro-Olivo, 2006; Harlacher, 2008).

The current study also produced similar outcomes to Gunter et al. (2012) finding similar results for treatment and control groups. The current study found matched outcomes between treatment and control groups for decreases in aggressive behavior whereas Gunter et al. (2012) found matched increases for emotional regulation. Gunter et al. (2012) surmised the similarities in emotional regulation increases for both groups may have been a function of maturation. Because the formative years are generally a period for the development of emotional regularity, maturation may explain these results. However, both groups in the current study were also simultaneously receiving family therapeutic intervention services which may have been the contributing factor to this reduction found in the current study.

The *Strong Start Pre-K* was provided to participants of the treatment group in addition to their receipt of a long standing therapeutic treatment program. Participants of the treatment and control groups had been attending the therapeutic preschool prior to the onset of the current study ranging in time from 4-17 months. Length of time in the

therapeutic preschool did not produce substantially different outcomes for participants. The current study also extended the programs 10 weekly lessons over the course of 3 days for 10 weeks. The intent of this program elongation was to provide participants of the treatment group with extended exposure to the program with the intent of extended practice for increased possibility for skill generalization. The extended participation in the program did not produce substantial differences between the treatment and control groups. This outcome may validate the findings of Tran (2007) who reported no substantial differences between participants who participated in the program with massed practice over 6 weeks verses distributed practice over the course of 12 weeks.

Findings of the current study also support previous findings of studies evaluating the effectiveness of intensive social skill training programs for children displaying symptoms of conduct problems. The *Incredible Years* program (Webster-Stratton, 1984; 1994; 2000) has been identified as one of the leading evidence-based interventions for children with externalizing behavior problems (Eyberg et al., 2008).

In comparison to the *Incredible Years* programs effectiveness for increasing the social competence of preschool children with conduct problems, effect sizes of the current study for changes in treatment group participants positive social engagements ranged from ES=.24-.94 with effect sizes of the *IY* program ranging from *d*=.33-1.59 (Beauchaine et al., 2005). Comparison of effect size outcomes from the current study to those of the *IY* program for changes in aversive behavioral engagements ranged from ES=-.01 - -1.16 in the current study and .*d*=.35-.51for participants of the *IY* program (Webster-Stratton & Reid, 2003; Webster-Stratton, Reid, & Hammond, 2004).

The *Incredible Years* program has demonstrated the strongest magnitude of effect

change in problem behavior when child-, parent-, and teacher-training are completed in tandem, with the next largest effects for parent training (Webster-Stratton et al., 2004). Although the current study did not offer a parent component per se, there is some evidence the parent bulletin encourages parent involvement in children's behavior change. These findings suggest the inclusion of training across care-givers, in addition to child training, may promote behavioral change by providing supports across environments.

Results of the current study are also concurrent with Kramer et al. (2009) findings on parent- and teacher-ratings of child behavior. Kramer et al. (2009) found parents reported larger changes in positive social behavior for participants of the *Strong Start* group above reports provided by teachers. The current study found parents of participants tended to rate larger changes in child behavior than teacher ratings. These results indicate parents may be more sensitive to changes in their child's behavior than is readily evident by behavior in the classroom. Whitcomb (2009) and Merrell (2010) posited behavior change in the few weeks during program administration may not be enough time to become fully aware of behavioral changes, which may also explain why teachers ratings do not reflect the same level of change parents report. Additionally, meta-analytic findings have revealed teachers report fewer internalizing and externalizing problems than do caregivers or youth-self reporting, which may also explain the difference in parent and teacher ratings of children's behavior in the current study (Youngstrom, Loeber, & Stouthamer, 2000).

The social validity results of the current study are similar to those found by Gunter et al. (2012) who examined the *Strong Start* program in public schools. Gunter et

al. found teachers enjoyed the programing but reported concerns for lesson length and enjoyment of the lesson. Results of the current study yielded higher social validity ratings from parents than from teachers of program participants. Although ratings from the social validity scale were not dissatisfactory, teacher ratings were only in slight agreement the program is a social valid intervention. Teachers anecdotally reported to the PI dislike for student pull-out from the classroom for group participation. This has not been a concern yet reported in the literature base likely due to the fact most of the previous studies have been conducted in the primary classroom with the curriculum provided by teachers.

Previous research has also shown adolescents with emotional and behavior disorders have shown increases in their social-emotional knowledge, but that knowledge did not translate into changes in behavior (Isava, 2006). This finding is similar to the finding in the current study in that demonstration of engagement in positive interactions was greater in the treatment setting than in the classroom setting. Generalization of social skill is a problematic issues faced by social skill curricula. DuPaul and Eckert (1994) report social skills training is most likely to generalize if participants have skill rather than performance deficit and if there is planned generalization techniques implemented across environments. It was posited by Isava (2006) the lack of translation between knowledge of emotional responding and behavior change may be attributed to perpetual patterns of behavior becoming resistant to intervention once a child is an adolescent. Research has suggested such patterns of maladaptive behavior receive intervention by age 8 before behaviors become crystallized or resistant to intervention (Webster-Stratton & Taylor, 2001). These findings support the need to provide intervention to children experiencing social-emotional difficulties at an early age and further study of the *Strong*

Start Pre-K program in terms of its ability to effect positive changes.

Study Limitations and Need for Future Research

Results of the current study should be viewed in light of its limitations. First, program administration did not begin until January which meant preschoolers had been attending the therapeutic preschool for several months. This gap in time from enrollment to the start of the treatment program may account partially for the low rate of externalizing behavior exhibited by participants. It is possible the discrepancy in the low rate of observed externalizing behavior compared to the elevated scores on the CBCL at intake may have been due to the over-reporting of parents or the tendency that behaviors are low frequency but high intensity at home. Further studies in therapeutic settings should begin administration of the program when children begin therapeutic preschool to assess for changes in behavior that are not confounded by a concurrent therapeutic treatment. Further, it is important that future research of the program be conducted in regular preschool programs to supplement the only such study to date (Gunter et al., 2012).

The current study was an AB single subject design with an immediate follow-up phase. A multiple baseline design would be preferred; however, this design was not feasible for the current study. With multiple groups, the multiple-baseline design would present fewer threats to internal and external validity and provide better evidence of program effects. The current study sought to limit threats by including a control group. Future studies should also employ a multiple-baseline implementation of the program across multiple environments. Additionally, the follow-up phase started the week after

cessation of the treatment phase rather than collecting follow-up data several weeks later, and program booster sessions were not utilized. These issues were limitations to the current study. Future studies should seek to utilize booster sessions and complete the follow-up phase several weeks later to assess for generalization and maintenance in behavior changes within a therapeutic preschool setting to evaluate the efficacy of booster sessions with this program.

The study was also limited by the low number of participants and the attrition of two children, one from the treatment group and one from the control group, at the end of the last week of the treatment phase. While posttest questionnaire data were collected from the 2 participants that withdrew from the preschool and the study, follow-up observational data are not available for Participants 4 and 10.

Another notable limitation to the current study is the lack of teacher involvement in the explicit reinforcement of *Strong Start Pre- K* program concepts throughout the day. The *Strong Start Pre-K* manual provides the suggestion to use a stuffed animal as a mascot to assist children in remembering program components to encourage generalization of skill throughout the day. The mascot did not follow the children into their classrooms and therefore that particular generalization component was compromised. Preschool teachers anecdotally reported that some aspects of the *Strong Start* program were naturally reinforced by lessons taught during circle-time in the classroom; however, teachers' approach to their lesson format and explicit reinforcement of social skill concepts during free-play in the therapeutic classroom revealed ample variability. This highlights the importance of reinforcement strategies and behavioral prompts for skill use across classrooms and other environments of the child's day to

encourage generalization.

The parent bulletin was found to be a useful and meaningful way to communicate with parents about the content of weekly lesson, but the *Strong Start* program does not incorporate a formal parent-training component. The *Strong Kid* series programing was not intended as an intervention for at-risk children but was initially aimed as a universal program to educate parents on multiple aspects of child behavior and development. Future research may wish to extend the group lessons on a secondary or tertiary-level to include parents in the lessons to provide parents with more concrete behavioral scripting to prompt children on appropriate expression of emotion.

Although the *Strong Start Pre-K* program was developed to be developmentally appropriate for preschool aged children, participants of the treatment group had some difficulty with the concept of being a good friend to other children if they did not like the other child. Despite participants of the treatment group increase in positive social behavior, their concrete thinking may have impeded further development of positive social behaviors. In light of this limitation, it may be beneficial to utilize books or video depicting characters that become friend after initially not liking one another to convey how an individual might grow to be someone's friend.

It is recommended future studies utilizing direct behavioral observation of program participants consider the use of behavioral frequency during free-play interactions rather than the momentary time sampling interval recording utilized in the current study. Utilization of a different type of a direct behavioral observation methodology may provide more information about the impact of the *Strong Start* program on behavioral change. Although the current study did not demonstrate large

differences in behavioral change, future administrators of the program may wish to consider the behavior change they are aiming to elicit. In the classroom, behaviors that are high intensity but low frequency may be most disruptive to the learning environment.

Implications for Practice

Results of the current study provide information on the use of the *Strong Start Pre-K* program as a tier-2 intervention in a therapeutic setting. As a tier-2 intervention, the program appeared to have the most effect for treatment group participants exhibiting aversive behavioral engagements at baseline; however, the skills did not translate to the degree observed in the treatment setting to the classroom setting. Participants of the treatment group increased in their engagement in positive verbalization and positive nonverbal behavior, whereas participants of the control group did not make the same gains. These results indicate that for children receiving services in a therapeutic or early intervention setting, the additional explicit instruction provided by the *Strong Start Pre-K* lessons may provide a buffer against the loss of positive social engagement. The program was found to be socially valid as it was enjoyable to participants overall; however, the program was not perceived by parents or teachers as being likely to extinguish the problem behaviors of participants.

It is strongly recommended future studies use the *Strong Start Pre-K* generalization techniques of the program mascot and the parent bulletins. If the program is implemented outside the classroom within the school setting, such as in the school psychologist/counselors office or the resource classroom, one should consider providing teachers with a copy of the bulletin as well and providing weekly consultation on

techniques for encouraging skill use. Should any future use of the program be implemented by a school professional other than the classroom teacher, the program implementer may wish to provide lessons within the classroom in order to more naturally incorporate the teacher into the program thereby encouraging the teacher to engage in prompts for skill generalization throughout the day.

The *Strong Start Pre-K* program incorporates several aspects which make the program appealing to use within the schools. First, the program is of minimal expense and is manualized, therefore includes nearly all the materials needed for program implementation. Second, the program has been designed for implementation without the requirement of formal training but included detailed instructions and scripts to facilitate teaching lessons. The lack of formal training requirements makes the *Strong Start Pre-K* and other aspects of the *Strong Kids* series accessible to multiple disciplines within a school building. Furthermore, the programing is time-efficient and reasonable for implementation within a school where there is competition for instructional time. Used as an intervention strategy by school psychologist and counselors, the *Strong Start Pre-K* program may also be useful to build in consultation with teachers to assist in the re-enforcement of lesson content. Consultative supports provided to teachers while they have administered the lessons has shown to demonstrate the greatest increases in positive social outcomes and positive teacher attitudes about the program (Gueldner, 2007; Levitt, 2009).

Some of the aspects that make *Strong Start Pre-K* appealing for use within the schools are also drawbacks to the program. In order for the program to be of minimal expense, it has a low technological demand. The lack of multimedia components may

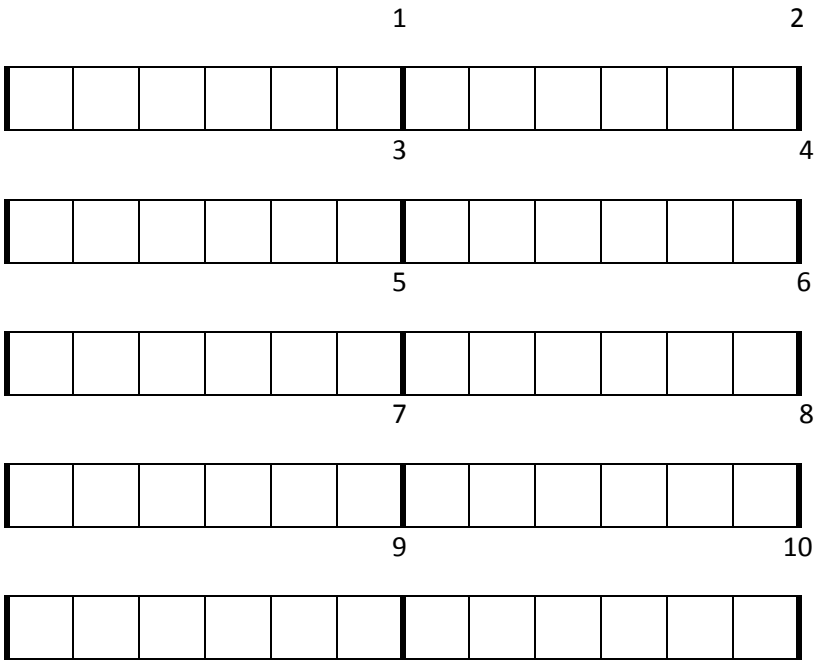
make the program less engaging for participants than some other commercially available programs. One method that may assist in making lessons more engaging for participants would be the incorporation of video media for the storytelling component from animated movies of books recommended in the *Strong Start Pre-K* manual. Many videos depicting the books in the *Strong Start* manual can be found on social-media websites. Although the time required for lesson implementation is practical for the school setting, it cannot be ignored that teachers have expressed concern for the length of the lesson. Overall, the current study provides results that are promising for assisting preschool children with a history of severe behavioral difficulties increase and maintain engagement in positive interactions after participation in the *Strong Start Pre-K* program.

APPENDIX A

PARTIAL TIME INTERVAL BEHAVIOR OBSERVATION RECORDING FORM

Partial Time Interval Behavior Observation Recording Form

Each box represents ten-second intervals totaling 10 minutes. At the end of each ten-second interval record the appropriate behavior code in the box. This form can be used for independent or structured activities.



Behavior Codes:

PV = Positive Verbalization: complementing peers, offering help to others, requesting help from others, inviting peers to play, encouraging others, responds appropriately to criticism , initiating positive conversations with peers, acknowledging compliments from others, politely declining if asked to join play and does not want to join and showing comfort to others.

PB = Positive Non-Verbal Behavior: joining in activities with asked, , responding to greetings/conversations of others, positively joining in play with peers, responds appropriately and politely when hit or pushed by sharing toys another, using positive bodily gestures, and positively taking place in a game/group play.

A = Physical Aggression: hitting, choking, throwing objects, restricting the movement of others, using physical force, pushing, biting, kicking, taking away toys or belongings of a peer, using negative bodily gestures, and spitting. or negative gestures

VA = Verbal Aggression is direct verbal communication such as: using profane language, yelling/screaming, whining to coheres others into giving them their way, threatening others, teasing, taunting, or name calling.

D = Defiance / Non-Compliance; When the child ignores, defies, or does not respond to a request from an adult within 3-5 seconds (used only with adult instruction)

N = Neutral Behavioral responses are defined as solitary or parallel play in which there is no interaction with peers.

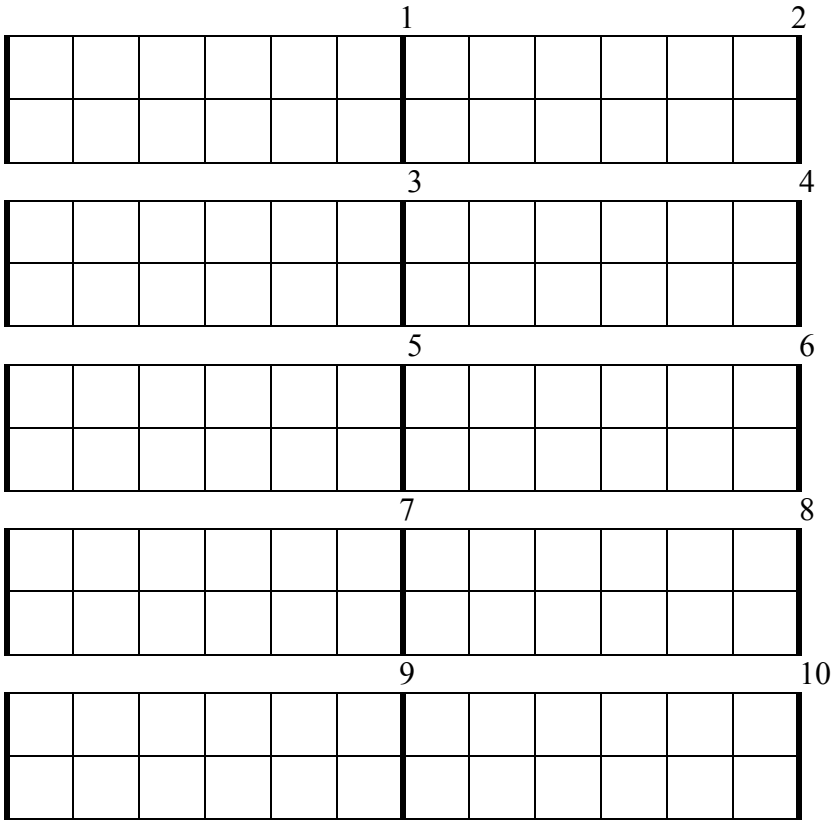
APPENDIX B

PEER COMPARISON PARTIAL TIME INTERVAL

BEHAVIOR OBSERVATION RECORDING FORM

Peer Comparison Partial Time Interval Behavior Observation Recording Form

Each box represents ten-second intervals totaling 15 minutes. At the end of each ten-second interval record the appropriate behavior code in the box for the target student and then record an observed behavior of a peer. This form can be used for independent or structured activities.



Behavior Codes:

PV = Positive Verbalization: complementing peers, offering help to others, requesting help from others, inviting peers to play, encouraging others, responds appropriately to criticism , initiating positive conversations with peers, acknowledging compliments from others, politely declining if asked to join play and does not want to join and showing comfort to others.

PB = Positive Non-Verbal Behavior: joining in activities with asked, , responding to greetings/conversations of others, positively joining in play with peers, responds appropriately and politely when hit or pushed by sharing toys another, using positive bodily gestures, and positively taking place in a game/group play.

A = Physical Aggression: hitting, choking, throwing objects, restricting the movement of others, using physical force, pushing, biting, kicking, taking away toys or belongings of a peer, using negative bodily gestures, and spitting or negative gestures.

VA = Verbal Aggression is direct verbal communication such as: using profane language, yelling/screaming, whining to coheres others into giving them their way, threatening others, teasing, taunting, or name calling.

D = Defiance / Non-Compliance; When the child ignores, defies, or does not respond to a request from an adult within 3-5 seconds (used only with adult instruction)

N = Neutral Behavioral responses are defined as solitary or parallel play in which there is no interaction with peers.

APPENDIX C

PARENTAL PERMISSION DOCUMENT

Parental Permission Document

BACKGROUND

You and your child are being asked to take part in a research study that is taking place at your child's preschool. The purpose of the study is to investigate the effectiveness of social and emotional learning instruction for children with behavior difficulties. Before you decide to participate and allow your child to participate in the current study please read the following information carefully. Children who are given permission to participate in the study may or may not be selected to participate in the social skills group or as a part of the group that will act as the comparison group. The researcher is available to answer any questions or concerns that you may have prior to providing consent to participate. Take time to decide whether you and your child will participate in this study.

Children who have difficulties with their behavior often experience difficulties with pro-social behavior, problem solving, and emotional regulation. The current study is important to better understand how to provide effective interventions to children experiencing behavior problems during the preschool years. The *Strong Start Pre-K* was developed to assist children to develop skills that will increase their self-esteem while decreasing problem behaviors and bad feelings about themselves. The *Strong Start Pre-K* has been shown in previous research to increase self-confidence and pro-social behaviors. The *Strong Start Pre-K* is presented through series lessons that teach and demonstrate how to use a number of social skills that are useful with preschoolers' friends, at home, and in the classroom.

This research study is being conducted by Brittaini Howard, a graduate student at the University of Utah in Educational Psychology. All social skills lessons will take place at The Children's Center during regular business hours.

STUDY PROCEDURE

Prior to the start of *Strong Start Pre-K*, children will be screened using some behavioral rating scales and checklists. If you and your child agree to participate in the current study, you may be asked to complete one behavior rating scale before the start of the program and one behavior rating scale and one checklist after the completion of the program. These scales and checklists will help us to better understand your child's current behaviors and social-emotional functioning. The scales and checklists will take

approximately 45 minutes to complete. The procedures of this study will follow the *Strong Start Pre-K* curriculum.

Parents of children involved in the current study will be asked to complete these surveys. The focus of this study is to determine the benefit of using the *Strong Start Pre-K* program to enhance the social-emotional well-being for children with problem behaviors. Your child will play an important role in this study. At the end of the program, parents will be asked to complete a short satisfaction survey and the same behavior scales and checklists as the beginning of the study.

If you and your child participate in this study, your child will attend a social skills group –*Strong Start Pre-K* three times per week at The Children's Center: one meeting will be for the core lesson, the second weekly meeting will be for follow-up activities and practice of skills, and the third meeting will allow for additional practice and closing activity for the weekly lesson. Each of the weekly activities is very important to help the children practice and maintain the skills they are learning. The entire program will last approximately 10 weeks. Each session will last approximately 30 minutes three times per week. During each session, your child will be taught the steps to perform various social skills such as how to talk kindly to others, and how to understand and manage feelings. All the lessons in *Strong Start Pre-K* follow a general format of: receiving instruction on a skill, listening to a story read to them about the skill, practicing the skill, and playing a skill related game or completing a skill related activity. Parents will be provided with a *Strong Start Pre-K* Bulletin that will describe each weekly lesson and strategies parents can use to help children practice skills at home.

After completion of the *Strong Start Pre-K* program, your child may be provided with two *Strong Start Pre-K* Booster Sessions if needed. Booster sessions will review and reinforce the skills learned during the 10 week program. All *Strong Start Pre-K* program sessions and observation time periods will be videotaped for review of participant progress in the program. Parents will be contacted after program completion and the results of their child's progress throughout the group sessions will be reviewed. All video recordings of participants will be secured on Mrs. Howards password protected computer.

RISKS

The risks of this study are minimal. Your child may not enjoy participating in the *Strong Start Pre-K* lessons, and may become distressed when placed in a situation where they talk about and practice social skills; however, these risks are similar to those experienced

on a daily basis your child's regular environment. Participation in this study involves no more risk than your child encounters in their typical educational setting. Additionally, parents may experience some distress disclosing information about their child's behavior.

BENEFITS

Due to the experimental nature of this study, no benefits can be promised for participating in this study. Although, because there is some evidence that the *Strong Start Pre-K* program is effective, your child may experience the following potential benefits:

- Children may acquire new socially appropriate behaviors and skills
- Children may meet new friends
- Children may learn how to be a better friend
- Children may increase their social and emotional competency
- Children may show a decrease in their disruptive behaviors
- Children may improve the way that they feel about themselves.
- A benefit to society to help determine if this social skills intervention benefits children attending a therapeutic preschool environment.

ALTERNATIVE PROCEDURES

If you do not want to take part or do not want your child to take part in this study, your child will remain in The Children's Centers regularly scheduled activities. There is no negative consequence of not participating in this study.

CONFIDENTIALITY

Your child's personal information will be kept strictly confidential. Information obtained from you and your child through checklists, surveys, questionnaires, and observations will be kept in a locked filing cabinet at the University of Utah. Any electronic data will be stored on Mrs. Howard's password protected personal computer. Access to this data will be restricted to Mrs. Howard and her research assistants. All personal information will be removed from any group information shared with other professionals.

The results of this study may be published in a professional journal and/or presented at professional conferences. Should this occur, no personally identifiable information will be given; only the age and gender of participants will be given.

If you feel that you or your child have been harmed as a result of participation, of if you have any questions, complaints or concerns related to this study please contact Mrs. Howard by phone, or by email:

Brittaini Howard

(917)789-5684

brittaini.howard@gmail.com

Institutional Review Board: Contact the Institutional Review Board (IRB) if you have questions regarding your rights as a research participant. Also, contact the IRB if you have questions, complaints or concerns which you do not feel you can discuss with the investigator. The University of Utah IRB may be reached by phone at (801) 581-3655 or by e-mail at irb@hsc.utah.edu.

Research Participant Advocate: You may also contact the Research Participant Advocate (RPA) by phone at (801) 581-3803 or by email at participant.advocate@hsc.utah.edu.

VOLUNTARY PARTICIPATION

Participation in this study is voluntary. Refusal to allow your child to participate in this study, or the decision to withdraw from this study will not result in a penalty or loss of benefits to which your child is entitled. You may choose to withdraw your child's participation from the study at any time.

COSTS AND COMPENSATION TO PARTICIPANTS

There is no cost to participate in this study. All materials necessary for participation will be provided by the researcher. Upon completion of the study, participants are free to keep all materials provided to them by the researcher.

Participants of this study may receive rewards for good behavior during group lessons. Rewards may include food treats, stickers, and small toys. Any reward that you or your child is not comfortable with will not be used. Parents will also be eligible to receive a $20 gift card to a local grocery store chain at the end of this study for your cooperation and participation in the current study.

CONSENT

By signing this consent form, I confirm I have read the information in this parental permission form and have had the opportunity to ask questions concerning the study. I will be given a signed copy of this parental permission form. I voluntarily agree to allow for myself and my child to participate in this study.

_____
Child's Name

_____
Parent/Guardian's Name

_____ _____
Parent/Guardian's Signature Date

_____
Relationship to Child

_____
Name of Person Obtaining Consent

_____ _____
Signature of Person Obtaining Consent Date

APPENDIX D

PROGRAM STRUCTURE INFORMATION FOR PARENTS

Program Structure Information for Parents

The *Strong Start Pre-K* program is a ten-unit social and emotional learning curriculum of which instruction is provided three times a week over a ten week time period. The program is designed to be administered to full classrooms or to small group of children to enhance social and emotional competency. The program will be used in the current study to evaluate the effects of decreasing disruptive behaviors which may include, but is not limited to aggression, noncompliance, and defiance.

The *Strong Start Pre-K* program is part of the *Strong Kids* series, an approach to teaching social and emotional skills. The program combines engaging materials with practice to facilitate positive social interactions and strategies for emotional regulation. Program materials have been shown in previous research to keep children interested in the program and motivate them to participate in practicing important skills.

The program includes 10 units to teach broad content areas including: understanding one own feelings, understanding the feelings of others, appropriate ways to manage feelings, problem solving, how to be friendly, and how to talk with friends. Lessons are presented in a 30 minute session three days a week with one unit completed each week. Lesson activities assist in the development and generalization of skills learned during lesson instruction. Each lesson generally follows the same format:

1. Group greetings with song
2. Review content from last week
3. Introduction to learning a new skill
4. Children are read a book related to the weekly lesson
5. Small group activity/game
6. Ending group: review lesson and distribute handouts to parents.

Each lesson unit is accompanied with a parent bulletin that describes the lesson learned during group so that children and parents/caregivers have the opportunity to review and practice the skills at home. At the beginning of each group meeting, the lesson from the previous week is reviewed and children are provided the opportunity to demonstrate the skill and share how they have used the skill outside of group. Children will have the opportunity to gain rewards (i.e. stickers, pencils, small toys, etc.) for demonstration of learned skill and appropriate behaviors during each group session. After completion of the Strong Start Pre-K program parents will be contacted to review the progress their child has made throughout their participation in the program.

APPENDIX E

THERAPEUTIC PRESCHOOL TEACHER CONSENT FORM

Therapeutic Preschool Teacher Consent Document

BACKGROUND

You are being asked to take part in a research study that is taking place at your preschool. The purpose of the study is to investigate the effectiveness of social and emotional learning instruction for children with behavior difficulties. Before you decide to participate and allow your child to participate in the current study please read the following information carefully. You are being asked to complete behavior rating scales and checklists for children who are given permission to participate in the study. The researcher is available to answer any questions or concerns that you may have prior to providing consent to participate. Take time to decide whether you are willing to participate in this study.

Children who have difficulties with their behavior often experience difficulties with pro-social behavior, problem solving, and emotional regulation. The current study is important to better understand how to provide effective interventions to children experiencing behavior problems during the preschool years. The *Strong Start Pre-K* was developed to assist children to develop skills that will increase their self-esteem while decreasing problem behaviors and bad feelings about themselves. The *Strong Start Pre-K* has been shown in previous research to increase self-confidence and pro-social behaviors. The *Strong Start Pre-K* program is presented through a series of lessons that teach and demonstrate how to use a number of social skills that are useful with preschoolers' friends, at home, and in the classroom.

This research study is being conducted by Brittaini Howard, a Doctoral student at the University of Utah in Educational Psychology. All social skills lessons will be conducted at The Children's Center during regular business hours.

STUDY PROCEDURE

Prior to the start of *Strong Start Pre-K*, children will be screened using some behavioral rating scales and checklists. If you agree to participate in the current study, you will be asked to complete three behavior rating scales before the start of the program and three behavior rating scales and one checklist after the completion of the program. These scales and checklists will help us to better understand your children's current behaviors and social-emotional functioning. The scales and checklists will take approximately 45 minutes to complete. The procedures of this study will follow the *Strong Start Pre-K* curriculum.

The focus of this study is to determine the benefit of using the *Strong Start Pre-K* program to enhance the social-emotional well-being for children with problem behaviors. The children selected from your preschool classroom will play an important role in this study. At the end of the program, therapeutic preschool teachers will be asked to complete a short satisfaction survey and the same behavior scales and checklists as the beginning of the study.

If children from your classroom are given parent permission to participate in this study, children will attend a social skills group –*Strong Start Pre-K* three times per week at The Children's Center: one meeting will be for the core lesson, the second weekly meeting will be for follow-up activities and practice of skills, and the third meeting will allow for additional practice and closing activity for the weekly lesson. Each of the weekly activities is very important to help the children practice and maintain the skills they are learning. The entire program will last approximately 10 weeks. Each session will last approximately 30 minutes a day and will be given three days per week. During each session, children will be taught the steps to perform various social skills such as how to talk kindly to others, and how to understand and manage feelings. All the lessons in *Strong Start Pre-K* follow a general format of: receiving instruction on a skill, listening to a story read to them about the skill, practicing the skill, and playing a skill related game or completing a skill related activity. Therapeutic preschool teachers of group participants will be provided with a *Strong Start Pre-K* Bulletin that will describe each weekly lesson and strategies that can use to help children practice skills in the classroom.

After completion of the *Strong Start Pre-K* program, children may be provided with two *Strong Start Pre-K* Booster Sessions if needed. Booster sessions will review and reinforce the skills learned during the 10 week program.

RISKS

The risks of this study are minimal. Children may not enjoy participating in the *Strong Start Pre-K* lessons, and may become distressed when placed in a situation where they talk about and practice social skills; however, these risks are similar to those experienced on a daily basis in the child's regular environment. Participation in this study involves no more risk than your child encounters in their typical educational setting.

You may also experience distress when asked to report on children's current levels of behavioral and social functioning. It is not anticipated that the possible distress from completing child behavior rating forms and checklists will be any different to those experienced on a daily basis in the therapeutic preschool setting.

BENEFITS

Due to the experimental nature of this study, no benefits can be promised for participating in this study. Although, because there is some evidence that the *Strong Start Pre-K* program is effective, children may experience the following potential benefits:

- Children may acquire new socially appropriate behaviors and skills
- Children may meet new friends
- Children may learn how to be a better friend
- Children may increase their social and emotional competency
- Children may show a decrease in their disruptive behaviors
- Children may improve the way that they feel about themselves.
- A benefit to society to help determine if this social skills intervention benefits children attending a therapeutic preschool environment.

ALTERNATIVE PROCEDURES
If you do not want to take part in this study, there is no negative consequence of not participating in this study.

CONFIDENTIALITY
Information you provide about child participants will be kept strictly confidential. Information obtained from you and your child through checklists, surveys, questionnaires, and observations will be kept in a locked filing cabinet at the University of Utah. Any electronic data will be stored on Mrs. Howard's password protected personal computer. Access to this data will be restricted to Mrs. Howard and her research assistants. All personal information will be removed from any group information shared with other professionals.

The results of this study may be published in a professional journal and/or presented at professional conferences. Should this occur, no personally identifiable information will be given; only the age and gender of participants will be given.

PERSON TO CONTACT
If you feel that you or your child have been harmed as a result of participation, of if you have any questions, complaints or concerns related to this study please contact Mrs. Howard by phone, or by email:

Brittaini Howard
(916)769-5684
brittaini.howard@gmail.com

Institutional Review Board: Contact the Institutional Review Board (IRB) if you have questions regarding your rights as a research participant. Also, contact the IRB if you have questions, complaints or concerns which you do not feel you can discuss with the investigator. The University of Utah IRB may be reached by phone at (801) 581-3655 or by e-mail at irb@hsc.utah.edu.

Research Participant Advocate: You may also contact the Research Participant Advocate (RPA) by phone at (801) 581-3803 or by email at participant.advocate@hsc.utah.edu.

VOLUNTARY PARTICIPATION
Participation in this study is voluntary. Refusal to participate in this study or the decision to withdraw from this study will not result in a penalty. You may choose to withdraw from participation in the study at any time.

COSTS AND COMPENSATION TO PARTICIPANTS
There is no cost to participate in this study. All materials necessary for participation will be provided by the researcher. Upon completion of the study, participants are free to keep all materials provided to them by the researcher.

CONSENT

By signing this consent form, I confirm I have read the information in this therapeutic preschool teacher permission form and have had the opportunity to ask questions concerning the study. I will be given a signed copy of this permission form. I voluntarily agree to participate and to allow preschool children in my classroom to participate in this study.

_____
Printed Name of Participant

_____ _____
Signature of Participant Date

_____
Printed Name of Person Obtaining Consent

_____ _____
Signature of Person Obtaining Consent Date

APPENDIX F

BEHAVIOR INTERVENTION RATING SCALE (BIRS)

BIRS

1.	Strong Start Pre-K would be an acceptable intervention to improve social skills	1	2	3	4	5	6
2.	Most parents would find Strong Start Pre-K appropriate for social skill intervention	1	2	3	4	5	6
3.	Strong Start Pre-K should prove effective in targeting social skills	1	2	3	4	5	6
4.	I would suggest the use of Strong Start Pre-K to other parents/teachers	1	2	3	4	5	6
5.	The child's behavior is severe enough to warrant the use of this intervention	1	2	3	4	5	6
6.	Most teachers would find this intervention suitable for the behavior described	1	2	3	4	5	6
7.	I would be willing to use Strong Start Pre-K in my classroom	1	2	3	4	5	6
8.	Strong Start Pre-K would not result in negative side-effects for the child	1	2	3	4	5	6
9.	Strong Start Pre-K would be an appropriate intervention for a variety of children	1	2	3	4	5	6
10.	Strong Start Pre-K is consistent with other social skills programs I have used	1	2	3	4	5	6
11.	Strong Start Pre-K is a fair way to teach social skills	1	2	3	4	5	6
12.	Strong Start Pre-K is reasonable for difficulties that arise from social skills	1	2	3	4	5	6
13.	I like the procedures used by Strong Start Pre-K	1	2	3	4	5	6
14.	Strong Start Pre-K is a good way to handle social skills	1	2	3	4	5	6
15.	Overall, Strong Start Pre-K was beneficial for the child	1	2	3	4	5	6
16.	Strong Start Pre-K would quickly improve the child's behavior	1	2	3	4	5	6
17.	Strong Start Pre-K would produce lasting improvement in the child's behavior	1	2	3	4	5	6
18.	Strong Start Pre-K would improve a child's behavior to the point that it would not noticeably deviate from other peer's behavior.	1	2	3	4	5	6
19.	Soon after using Strong Start Pre-K, there was a noticeable positive change in social skills	1	2	3	4	5	6
20.	The child's behavior will remain at an improved level even after Strong Start Pre-K is discontinued	1	2	3	4	5	6
21.	Using Strong Start Pre-K should not only improve the child's behavior in the classroom, but also in other settings (e.g. at home, other classrooms)	1	2	3	4	5	6
22.	When comparing a participant with a non-participant of Strong Start Pre-K, the participant's and peer's behavior would be less alike after using Strong Start Pre-K	1	2	3	4	5	6
23.	Strong Start Pre-K should produce enough improvement in social skills so the behavior is no longer a problem	1	2	3	4	5	6
24.	Other behaviors related to social skills are likely to be improved by Strong Start Pre-K	1	2	3	4	5	6

APPENDIX G

CHILD CONSUMER SATISFACTION SURVEY (CCSS)

Child Consumer Satisfaction Survey

Name: _____ Date: _____

Instructions to be read to participants:

You will now be read some questions about being in the *Strong Start* group. Please circle how you feel about each question. Circle the face under the 1 if you really disagree with the statement, the face under the 3 if you kind of agree, and face under the 5 if you really agree.

1. I enjoyed participating in the *Strong Start* program

2. The *Strong Start* program taught me know to make friends

3. I liked the books that were read to me during the *Strong Start* group

4. I enjoyed participating in the *Strong Start* group

5. I would like the *Strong Start* program to teach me more

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